

# Natural

## Parameter Reference

Version 8.2.6 for Mainframes

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This document applies to Natural Version 8.2.6 for Mainframes.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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## Table of Contents

Preface .....	xvii
1 Introduction to Profile Parameters .....	1
2 Introduction to Session Parameters .....	3
Session Parameter Usage .....	4
How to Set Session Parameters .....	4
Session Parameter Evaluation .....	6
3 Profile Parameters Grouped by Category .....	7
Batch Mode .....	8
Character Assignments .....	8
Compiler Options .....	9
Database Management .....	9
Date and Time Settings .....	10
Debugging and Tracing .....	10
External Subprograms .....	11
Limits .....	11
Monitoring .....	12
Natural System Files .....	12
Natural with Other Software AG Products .....	13
Performance Optimization .....	14
Output Reports and Work Files .....	14
Remote Procedure Call (RPC) Settings .....	15
Session Control .....	15
Session Initialization and Termination .....	15
Source Management .....	16
Storage Management .....	16
Terminal Communication .....	17
Translation Tables .....	18
Unicode and Code Page Support .....	18
Usage Control and Configuration Settings for Profile Parameters .....	19
Support for Internet and XML .....	19
TP Monitor Interfaces .....	19
4 ABLOG – Log Program Execution Errors .....	21
5 AD - Attribute Definition .....	23
AD Parameter Syntax .....	24
Field Representation .....	25
Field Alignment .....	25
Field Input/Output Characteristics .....	26
Interpretation of Alphanumeric Fields .....	27
Mandatory Input .....	28
Length of Input Value .....	28
Field Upper/Lower Case Characteristics .....	28
Filler Character .....	29
6 ADAACBX – Use of the Extended Adabas Control Block .....	31

7	ADAMODE - Adabas Call Interface Mode .....	33
8	ADANAME - Name of Adabas Link Routine .....	37
9	ADAPRM - Adabas Review Support .....	39
10	ADASBV - Adabas Security by Setting .....	41
11	AL - Alphanumeric Length for Output .....	43
12	ASIZE - Entire System Server Auxiliary Buffer .....	45
13	ASPSIZE - Work Area Size of Adabas Stored Procedures and Triggers .....	47
14	ASYNNAM - Output System ID for Asynchronous Processing (under openUTM) .....	49
15	ATTN - Attention Key Interrupt Support .....	51
16	AUTO - Automatic Logon .....	53
17	BP82 - Buffer Pool Placeholder when Object not Found .....	55
18	BPC64 - Buffer Pool Cache Storage Type .....	57
19	BPCSIZE - Cache Size for Natural Buffer Pool .....	59
20	BPI - Buffer Pool Initialization .....	61
	BPI Parameter Syntax .....	62
	NTBPI Macro Syntax .....	63
	Keyword Subparameters .....	63
	Examples of BPI Parameter .....	69
	Examples of NTBPI Macros .....	70
21	BPLIST - Name of Preload List for Natural Buffer Pool .....	71
22	BPMETH - Buffer Pool Space Search Algorithm .....	73
23	BPNAME - Name of Natural Global Buffer Pool .....	75
24	BPPROP - Global Buffer Pool Propagation .....	77
25	BPSFI - Object Search First in Buffer Pool .....	79
26	BPSIZE - Size of Natural Local Buffer Pool .....	81
27	BPTEXT - Size of Text Segments in Natural Buffer Pool .....	83
28	BSIZE - Size of EntireX Broker Buffer .....	85
29	BX - Box Definition .....	87
30	CANCEL - Session Cancellation with Dump .....	89
31	CC - Error Processing in Batch Mode .....	91
32	CCHAR - Allow Output Control Characters .....	93
33	CCTAB - Printer Escape Sequence Definition .....	95
	CCTAB Parameter Syntax .....	96
	NTCCTAB Macro Syntax .....	98
	String Syntax for OPN, CLS, CODE, CS, CSS or CSE .....	98
	Proportional Fonts .....	99
	Examples of CCTAB Parameter .....	99
	Examples of NTCCTAB Macros .....	99
34	CD - Color Definition .....	101
35	CDYNAM - Dynamic Loading of Non-Natural Programs .....	103
36	CF - Character for Terminal Commands .....	105
37	CFICU - Unicode and Code Page Support .....	107
	CFICU Parameter Syntax .....	108
	NTCFICU Macro Syntax .....	109

---

Keyword Subparameters .....	109
Example of CFICU Parameter .....	113
Example of NTCFICU Macro .....	113
38 CFWSIZE (Internal Use) .....	115
39 CLEAR - Processing of CLEAR Key in NEXT Mode .....	117
40 CM - Command Mode .....	119
41 CMPO - Compilation Options .....	121
CMPO Parameter Syntax .....	122
NTCMPO Macro Syntax .....	122
Keyword Subparameters .....	123
Example of CMPO Parameter .....	124
Example of NTCMPO Macro .....	124
42 CMPR - General Default Compression Optimization Algorithm .....	125
43 COMP - Parameters for Natural Com-plete/SMARTS Interface .....	127
COMP Parameter Syntax .....	128
NTCOMP Macro Syntax .....	128
Keyword Subparameters .....	129
Example of COMP Parameter .....	133
Example of NTCOMP Macro .....	133
44 CP - Default Code Page Name .....	135
45 CPCVERR - Code Page Conversion Error .....	137
46 CPOBJIN - Code Page of Batch Input File .....	139
47 CPPRINT - Code Page of Batch Output File .....	141
48 CPSYNIN - Code Page of Batch Input File for Commands .....	143
49 CSIZE - Size of Con-nect/Con-form Buffer Area .....	145
50 CSTATIC - Statically Linked Modules .....	147
CSTATIC Parameter Syntax .....	148
NTCSTAT Macro Syntax .....	149
Example of Parameter CSTATIC .....	149
Examples of NTCSTAT Macro .....	149
51 CV - Attribute Control Variable .....	151
52 CVMIN - Control Variable Modified at Input .....	153
53 DATSIZE - Minimum Size of Buffer for Local Data .....	155
54 DB - Database Types and Options .....	157
DB Parameter Syntax .....	158
NTDB Macro Syntax .....	159
Possible Database Types .....	160
Possible Database Options .....	161
Examples of DB Parameter .....	161
Examples of NTDB Macro .....	162
55 DB2 - Parameters for SQL Database Management Interfaces .....	163
DB2 Parameter Syntax .....	164
NTDB2 Macro Syntax .....	164
Keyword Subparameters .....	165
Example of DB2 Parameter .....	178

Example of NTDB2 Macro .....	178
56 DB2SIZE - Natural Buffer Area for DB2 or SQL/DS .....	179
57 DBCLOSE - Database Close at Session End .....	181
58 DBGAT - Debug Attach Server for NaturalONE .....	183
DBGAT Parameter Syntax .....	184
NTDBGAT Macro Syntax .....	184
Example of DBGAT Parameter .....	185
Example of NTDBGAT Macro .....	185
59 DBGERR - Automatic Start of Debugger at Runtime Error .....	187
60 DBID - Default Database ID for Natural System Files .....	189
61 DBOPEN - Database Open without ETID .....	191
62 DBROLL - Database Calls before Session Suspension .....	193
63 DBUPD - Database Updating .....	195
64 DC - Character for Decimal Point Notation .....	197
65 DD - Day Differential .....	199
66 DELETE - Deletion of Dynamically Loaded Programs .....	201
67 DF - Date Format .....	203
68 DFOUT - Date Format for Output .....	205
69 DFSTACK - Date Format for Stack .....	207
70 DFTITLE - Output Format of Date in Standard Report Title .....	209
71 DL - Display Length for Output .....	211
72 DLISIZE - Size of Natural Buffer Area for DL/I .....	213
73 DO - Display Order of Output Data .....	215
74 DS - Define Size of Storage Buffer .....	217
DS Parameter Syntax .....	218
NTDS Macro Syntax .....	219
Table of Buffer Sizes .....	219
Example of DS Parameter .....	222
Example of NTDS Macro .....	222
75 DSC - Data-Stream Compression (for 3270-Type Terminals) .....	223
76 DSIZE - Size of DBLOG Buffer .....	225
77 DTFORM - Date Format .....	227
78 DU - Dump Generation .....	229
79 DUE - Dump Generation, Error-Specific .....	231
80 DY - Dynamic Attributes .....	233
DY Parameter Syntax .....	235
Examples .....	236
81 DYNPARM - Control Use of Dynamic Parameters .....	239
DYNPARM Parameter Syntax .....	240
NTDYNP Macro Syntax .....	241
Examples .....	241
82 ECHO - Control Printing of Batch Input Data .....	243
83 EDBP - Software AG Editor Buffer Pool Definitions .....	245
EDBP Parameter Syntax .....	246
NTEDBP Macro Syntax .....	247

Keyword Subparameters .....	247
Example of EDBP Parameter .....	253
Example of NTEDBP Macro .....	253
84 EDPSIZE - Size of Software AG Editor Auxiliary Buffer Pool .....	255
85 EJ - Page Eject .....	257
86 EM - Edit Mask .....	259
EM Parameter Syntax .....	260
Examples .....	261
Blanks in Edit Masks .....	261
Default Edit Masks .....	261
Edit Masks for Numeric Fields .....	262
Edit Masks for Alphanumeric Fields .....	265
Edit Masks for Binary Fields - Format B .....	267
Hexadecimal Edit Masks .....	267
Edit Masks for Date and Time Fields - Formats D and T .....	269
Edit Masks for Logical Fields - Format L .....	273
87 EMFM - Edit Mask Free Mode .....	275
88 EMU - Unicode Edit Mask .....	277
89 ENDBT - BACKOUT TRANSACTION at Session End .....	279
90 ENDMMSG - Display Session-End Message .....	281
91 ES - Empty Line Suppression .....	283
92 ESCAPE - Ignore Terminal Commands %% and % .....	285
93 ESIZE - Size of User-Buffer Extension Area .....	287
94 ET - Execution of END/BACKOUT TRANSACTION Statements .....	289
95 ETA - Error Transaction Program .....	291
96 ETDB - Database for Transaction Data .....	293
97 ETEOP - Issue END TRANSACTION at End of Program .....	295
98 ETID - Adabas User Identification .....	297
99 ETIO - Issue END TRANSACTION upon Terminal I/O .....	299
100 ETPSIZE - Size of Entire Transaction Propagator Buffer .....	301
101 ETRACE - External Trace Function .....	303
102 ETSYNC - Issue Syncpoint upon End of Transaction/Backout Transaction .....	305
103 EXCSIZE - Size of Buffer for Natural Expert C Interface .....	307
104 EXRSIZE - Size of Buffer for Natural Expert Rule Tables .....	309
105 FAMSTD - Overwriting of Print and Work File Access Method Assignments .....	311
106 FC - Filler Character for INPUT Statement .....	313
107 FC - Filler Character for DISPLAY Statement .....	315
108 FCDP - Filler Character for Dynamically Protected Input Fields .....	317
109 FDIC - Predict System File .....	319
110 FL - Floating Point Mantissa Length .....	321
111 FNAT - Natural System File for System Programs .....	323
112 FNR - Default File Number of Natural System Files .....	327
113 FPROF - Natural System File for Parameter Profiles .....	329
114 FREEGDA - Release GDA in Utility Mode .....	333
115 FREG - Natural Registry System File .....	335

116 FS - Default Format/Length Setting for User-Defined Variables .....	337
117 FSEC - Natural Security System File .....	339
118 FSIZE (Internal Use) .....	341
119 FSPOOL - Natural Advanced Facilities Spool File .....	343
120 FUSER - Natural System File for User Programs .....	345
121 GC - Filler Character for Group Headers .....	347
122 HC - Header Centering .....	349
123 HCAM - Hardcopy Access Method .....	351
124 HCDEST - Hardcopy Output Destination .....	353
125 HD - Header Definition .....	355
126 HE - Helproutine .....	357
HE Parameter Syntax .....	358
Execution of Helproutines .....	360
Examples .....	360
127 HI - Help Character .....	363
128 HW - Heading Width .....	365
129 IA - Input Assign Character .....	367
130 IC - Insertion Character .....	369
131 ICU - Unicode Insertion Character .....	371
132 ID - Input Delimiter Character .....	373
133 IKEY - Processing of PA and PF Keys .....	375
134 IM - Input Mode .....	377
135 IMSG - Session Initialization Error Messages .....	379
136 IMSP - General Parameters for Natural IMS TM Interface .....	381
NTIMSP Macro Syntax .....	382
Keyword Subparameters .....	382
Example of NTIMSP Macro .....	384
137 IMSPE - Environment Parameters for Natural IMS TM Interface .....	385
NTIMSPE Macro Syntax .....	386
Keyword Subparameters .....	387
Example of NTIMSPE Macro .....	398
138 IMSPT - Transaction Definitions for Natural IMS TM Interface .....	399
NTIMSPT Macro Syntax .....	400
Keyword Subparameters .....	400
Example of NTIMSPT Macro .....	404
139 INTENS - Printing of Intensified Fields .....	405
140 IP - INPUT Prompting Text .....	407
141 IS - Identical Suppress .....	409
142 ISIZE - Size of Initialization Buffer .....	411
143 ITERM - Session Termination in Case of Initialization Error .....	413
144 ITRACE - Internal Trace Function .....	415
145 KD - Key Definition .....	417
146 KEY - Setting Assignments to PA, PF and CLEAR Keys .....	419
147 LC - Lower to Upper Case Translation .....	421
148 LC - Leading Characters .....	423



---

149 LCU - Unicode Leading Characters .....	425
150 LE - Reaction when Limit for Processing Loop Exceeded .....	427
151 LFILE - Logical System File Definition .....	429
LFILE Parameter Syntax .....	430
NTLFILE Macro Syntax .....	431
Example of LFILE Parameter .....	431
Examples of NTLFILE Macro .....	432
152 LIBNAM - Name of External Program Load Library .....	433
153 LOG (Internal Use) .....	435
154 LS - Line Size .....	437
Profile Parameter LS .....	438
Session Parameter LS .....	438
Specification with Statements .....	439
155 LT - Limit for Processing Loops .....	441
156 MADIO - Maximum DBMS Calls between Screen I/O Operations .....	443
157 MAINPR - Override Default Output Report Number .....	445
158 MAXCL - Maximum Number of Program Calls .....	447
159 MAXROLL - Number of CMROLL Calls before Session Suspension .....	449
160 MAXYEAR - Maximum Year for Date/Time Values .....	451
161 MC - Multiple-Value Field Count .....	453
162 MENU - Menu Mode .....	455
163 ML - Position of Message Line .....	457
164 MONSIZE - Size of SYSTP Monitor Buffer .....	459
165 MP - Maximum Number of Pages of a Report .....	461
166 MS - Manual Skip .....	463
167 MSGSF - Display System Error Messages in Short/Full Format .....	465
168 MT - Maximum CPU Time .....	467
169 NAFSIZE - Size of Buffer for Natural Advanced Facilities .....	469
170 NAFUPF - Natural Advanced Facilities User Profile .....	471
171 NC - Use of Natural System Commands .....	473
172 NISN (Internal Use) .....	475
173 NL - Numeric Length for Output .....	477
174 NUCNAME - Name of Environment-Independent Nucleus .....	479
175 O4I - Collect Data for Optimize for Infrastructure .....	481
176 OBJIN - Use of CMOBJIN as Natural Input File .....	483
177 OPF - Overwriting of Protected Fields by Helproutines .....	485
178 OPRB - Database Open/Close Processing .....	487
OPRB Parameter Syntax .....	488
Dynamic OPRB with Natural Security .....	489
OPRB for VSAM .....	490
OPRB for Adabas .....	490
NTOPRB Macro Syntax .....	491
Examples of NTOPRB Macros .....	492
179 OPT - Control of Natural Optimizer Compiler .....	493
OPT Parameter Syntax .....	494

NTOPT Macro Syntax .....	494
180 OSP - Parameters for z/OS Batch .....	495
OSP Parameter Syntax .....	496
NTOSP Macro Syntax .....	496
Keyword Subparameters .....	496
Example of OSP Parameter .....	500
Example of NTOSP Macro .....	500
181 OUTDEST - Output Destination for Asynchronous Processing .....	501
182 OVSIZE - Storage Thread Overflow Size .....	503
183 PARM - Alternative Parameter Module .....	505
184 PC - Control of Personal-Computer Access Method .....	507
185 PC - Periodic Group Count .....	509
186 PCNTRL - Print-Control Characters .....	511
187 PD - Limit of Pages for NATPAGE .....	513
188 PDPSIZE - Size of the Profiler Data Pool .....	515
189 PECK - PCHECK/ECHECK Error Processing .....	517
190 PGP - Properties for External Programs .....	519
PGP Parameter Syntax .....	520
NTPGP Macro Syntax .....	522
Examples of PGP Parameter .....	522
Examples of NTPGP Macros .....	522
191 PLOG - Logging of Dynamic Parameters .....	523
192 PM - Print Mode .....	525
Profile Parameter PM .....	526
Session Parameter PM .....	526
193 POS22 - Version 2.2 Algorithm for POS System Function .....	529
194 PRINT - Print File Assignments .....	531
PRINT Parameter Syntax .....	532
NTPRINT Macro Syntax .....	533
Keyword Subparameters for All Environments .....	534
Keyword Subparameters for AM=STD in All Environments .....	539
Keyword Subparameters for AM=STD in z/OS Environments .....	542
Keyword Subparameters for AM=STD in z/VSE Environments .....	544
Keyword Subparameters for AM=STD in BS2000/OSD Environments .....	546
Keyword Subparameters for AM=CICS .....	547
Keyword Subparameters for AM=COMP (Com-plete) .....	548
Keyword Subparameters for AM=SMARTS (Com-plete) .....	548
Keyword Subparameters for AM=IMS .....	549
Keyword Subparameters for DEFINE PRINTER Statement .....	549
195 PROFILE - Activate Dynamic Parameter Profile .....	551
196 PROGRAM - Non-Natural Program Receiving Control after Termination .....	555
197 PS - Page Size for Natural Reports .....	559
198 PSEUDO - CICS Pseudo-Conversational Mode .....	561
199 RCA - Resolve Addresses of Statically Linked Modules .....	563
200 RCALIAS - External Name Definition for Statically Linked Modules .....	565

RCALIAS Parameter Syntax .....	566
NTALIAS Macro Syntax .....	567
Example of RCALIAS Parameter .....	567
Examples of NTALIAS Macros .....	567
201 RCFIND - Handling of Response Code 113 for FIND Statement .....	569
202 RCGET - Handling of Response Code 113 for GET Statement .....	571
203 RDACT - (Internal Use) .....	573
204 RDC - Configure the Natural Data Collector .....	575
RDC Parameter Syntax .....	576
NTRDC Macro Syntax .....	577
Keyword Subparameters .....	577
Example of RDC Parameter .....	580
Example of NTRDC Macro .....	580
205 RDCEXIT - Define Natural Data Collector User Exits .....	581
206 RDCSIZE - Size of Buffer for the Natural Data Collector .....	583
207 RDNODE - (Internal Use) .....	585
208 RDPORT - (Internal Use) .....	587
209 READER - z/VSE System Logical Units for Input .....	589
210 RECAT - Dynamic Recataloging .....	591
211 REINP - Issue Internal REINPUT Statement for Invalid Data .....	593
212 RELO - Storage Thread Relocation .....	595
213 RNCONST - Renumber Line Numbers in Constants .....	597
214 RFILE - File for Recordings .....	599
215 RI - Release ISNs .....	601
216 RJESIZE - Initial Size of NATRJE Buffer .....	603
217 RM - Retransmit Modified Fields .....	605
218 ROSY - Read-Only Access to System Files .....	607
219 RPC - Remote-Procedure-Call Settings .....	609
RPC Parameter Syntax .....	610
NTRPC Macro Syntax .....	610
Keyword Subparameters for Client and Server .....	611
Keyword Subparameters for Client Only .....	614
Keyword Subparameters for Server Only .....	619
RPC Parameter Example .....	628
NTRPC Macro Example .....	628
220 RUNSIZE - Size of Runtime Buffer .....	629
221 SA - Sound Terminal Alarm .....	631
222 SB - Selection Box .....	633
Syntactical Considerations .....	634
Runtime Considerations .....	635
Features .....	636
Restrictions .....	638
223 SCTAB - Scanner Characters .....	639
SCTAB Parameter Syntax .....	640
NTSCTAB Macro Syntax .....	641

Example of SCTAB Parameter .....	641
Examples of NTSCTAB Macro .....	642
224 SELUNIT - Activate Selected Natural Features .....	643
Selectable Units Available .....	644
SELUNIT Parameter Syntax .....	645
Example of SELUNIT Parameter .....	645
225 SENDER - Screen Output Destination for Asynchronous Processing .....	647
226 SF - Spacing Factor .....	649
227 SG - Sign Position .....	651
228 SKEY - Storage Key for Program Execution .....	653
229 SL - Source Line Length .....	655
230 SLOCK - Source Locking .....	657
231 SM - Programming in Structured Mode .....	659
232 SORT - Control of Sort Program .....	661
SORT Parameter Syntax .....	662
NTSORT Macro Syntax .....	662
Keyword Subparameters .....	663
Examples of SORT Parameter .....	666
Examples of NTSORT Macros .....	666
233 SOSI - Shift-Out/Shift-In Codes for Double-Byte Character Set .....	667
SOSI Parameter Syntax .....	668
Positional Subparameters .....	668
Conversion of Logical Shift-Out/Shift-In Characters .....	669
Automatic Adaptation of Translation Tables .....	669
Compatibility of SOSI Profile Parameter with SO and SI Profile Parameters of Previous Natural Versions .....	670
SOSI Parameter Examples .....	670
234 SRETAIN - Retain Source Format .....	671
235 SSIZE - Size of Source Area Allocated by the Editors .....	673
236 STACK - Place Data/Commands on the Stack .....	675
237 STACKD - Stack Delimiter Character .....	677
238 STEPLIB - Additional Steplib Library .....	679
239 SUBSID - Subsystem ID under z/OS and z/VSE .....	681
240 SYNERR - Control of Syntax Errors .....	683
241 SYS - Define and Activate a Set of Dynamic Profile Parameters .....	685
SYS Parameter Syntax .....	686
NTSYS Macro Syntax .....	687
Example of NTSYS Macro .....	688
242 SYSCIP - Adabas Cipher Key for Natural System Files .....	689
243 SYSPSW - Adabas Default Password for Natural System Files .....	691
244 TAB - Standard Output Character Translation .....	693
TAB Parameter Syntax .....	694
NTTAB Macro Syntax .....	695
Example of TAB Parameter .....	695
Example of NTTAB Macro .....	695

---

245	TAB1 - Alternative Output Translation .....	697
	TAB1 Parameter Syntax .....	698
	NTTAB1 Macro Syntax .....	699
	Example of TAB1 Parameter .....	699
	Example of NTTAB1 Macro .....	699
246	TAB2 - Alternative Input Translation .....	701
	TAB2 Parameter Syntax .....	702
	NTTAB2 Macro Syntax .....	703
	Example of TAB2 Parameter .....	703
	Example of NTTAB2 Macro .....	703
247	TABA1 - EBCDIC-to-ASCII Translation .....	705
	TABA1 Parameter Syntax .....	706
	NTTABA1 Macro Syntax .....	707
	Example of TABA1 Parameter .....	707
	Example of NTTABA1 Macro .....	707
248	TABA2 - ASCII-to-EBCDIC Translation .....	709
	TABA2 Parameter Syntax .....	710
	NTTABA2 Macro Syntax .....	710
	Example of TABA2 Parameter .....	711
	Example of NTTABA2 Macro .....	711
249	TABL - SYS Library Output Translation .....	713
	TABL Parameter Syntax .....	714
	NTTABL Macro Syntax .....	715
	Example of TABL Parameter .....	715
	Example of NTTABL Macro .....	715
250	TC - Trailing Characters .....	717
251	TCU - Unicode Trailing Characters .....	719
252	TD - Time Differential .....	721
253	TF - Translation of Database ID/File Number .....	723
	TF Parameter Syntax .....	724
	NTTF Macro Syntax .....	725
	Example of TF Parameter .....	725
	Example of NTTF Macro .....	725
254	THSEPCH - Thousands Separator Character .....	727
255	THSIZE - Thread Size .....	729
256	TMODEL - IBM 3270 Terminal Model .....	731
257	TPF (Internal Use) .....	733
258	TQ - Translate Quotation Marks .....	735
259	TRACE - Define Components to be Traced .....	737
	TRACE Parameter Syntax .....	738
	NTTRACE Macro Syntax .....	739
	Example of TRACE Parameter .....	739
	Example of NTTRACE Macro .....	739
260	TS - Translate Output from Programs in System Libraries .....	741
261	TSIZE - Size of Buffer for Adabas Text Retrieval .....	743

262	TSOP - Parameters for Natural TSO Interface .....	745
	TSOP Parameter Syntax .....	746
	NTTSOP Macro Syntax .....	746
	Keyword Subparameters .....	747
	Example of TSOP Parameter .....	750
	Example of NTTSOP Macro .....	751
263	TTYTYPE - Terminal Type .....	753
264	UC - Underlining Character .....	755
265	UCONMAX - Maximum Number of Concurrent Sessions for a User .....	757
266	UDB - User Database ID .....	759
267	ULANG - User Language .....	761
268	UNIIO (Internal Use) .....	763
269	UPSI - Control of the User Program Switch Indicator .....	765
270	USER - Restrict Use of Profile Parameter Strings and Modules .....	767
	USER Parameter Syntax .....	768
	NTUSER Macro Syntax .....	769
	Example of USER Parameter .....	769
	Example of NTUSER Macro .....	770
271	USERBUF (Internal Use) .....	771
272	UTAB1 - Lower-to-Upper-Case Translation .....	773
	UTAB1 Parameter Syntax .....	774
	NTUTAB1 Macro Syntax .....	775
	Example of UTAB1 Parameter .....	775
	Example of NTUTAB1 Macro .....	775
273	UTAB2 - Upper-to-Lower-Case Translation .....	777
	UTAB2 Parameter Syntax .....	778
	NTUTAB2 Macro Syntax .....	779
	Example of UTAB2 Parameter .....	779
	Example of NTUTAB2 Macro .....	779
274	VSAM - Parameters for Natural for VSAM .....	781
	VSAM Parameter Syntax .....	782
	NTVSAM Macro Syntax .....	782
	NTVEXIT Macro Syntax .....	783
	NTVLSR Macro Syntax .....	783
	NTVTVSD Macro Syntax .....	783
	Keyword Subparameters .....	784
	Examples of NTVSAM Macro .....	797
	Examples of VSAM Parameter .....	798
	PARM - Alternative Natural Parameter Module for VSAM .....	798
275	VSEP - Parameters for z/VSE Batch .....	799
	VSEP Parameter Syntax .....	800
	NTVSEP Macro Syntax .....	800
	Keyword Subparameters .....	801
	Example of VSEP Parameter .....	806
	Example of NTVSEP Macro .....	806

---

276	VSIZE - Size of Buffer Area for Natural for VSAM .....	807
277	WEBIO - Web I/O Interface Screen Rendering .....	809
	WEBIO Parameter Syntax .....	810
	NTWEBIO Macro Syntax .....	810
	Keyword Subparameters .....	811
	Example of WEBIO Parameter .....	812
	Example of NTWEBIO Macro .....	812
278	WH - Wait for Record in Hold Status .....	813
279	WORK - Work-File Assignments .....	815
	WORK Parameter Syntax .....	816
	NETWORK Macro Syntax .....	817
	Keyword Subparameters for All Environments .....	818
	Keyword Subparameters for AM=STD in All Environments .....	823
	Keyword Subparameters for AM=STD in z/OS Environments .....	825
	Keyword Subparameters for AM=STD in z/VSE Environments .....	826
	Keyword Subparameters for AM=STD in BS2000/OSD Environments .....	828
	Keyword Subparameters for AM=CICS .....	828
	Keyword Subparameters for AM=COMP .....	829
	Keyword Subparameters for AM=SMARTS .....	830
280	WPSIZE - Sizes of Natural Work Pools .....	833
281	WSISIZE - Buffer for Natural Workstation Interface .....	835
282	XML - Activate PARSE XML and REQUEST DOCUMENT Statements .....	837
	XML Parameter Syntax .....	838
	NTXML Macro Syntax .....	839
	Keyword Subparameters .....	839
	Examples of XML Parameter .....	845
	Examples of NTXML Macro .....	845
283	XREF - Creation of XRef Data for Natural .....	847
	Possibilities of Setting the XREF Parameter .....	848
	XRef Data Generation .....	849
	Extended XRef Data Generation (For Internal Use Only) .....	849
284	YD - Year Differential .....	851
285	YSLW - Year Sliding or Fixed Window .....	853
	Examples of YSLW Parameter .....	855
286	ZD - Zero-Division Check .....	857
287	ZIIP - zIIP Processing (z/OS Only) .....	859
	ZIIP Parameter Syntax .....	860
	NTZIIP Macro Syntax .....	861
	Keyword Subparameters .....	861
	Example of ZIIP Parameter .....	864
	Example of NTZIIP Macro .....	864
288	ZP - Zero Printing .....	865
289	ZSIZE - Size of Entire DB Buffer Area .....	867





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# Preface

---

This documentation contains detailed descriptions of all Natural profile and session parameters provided to configure your Natural environment.

If a Natural session parameter with the same name and functionality as a Natural profile parameter exists, the descriptions of both parameters are combined in a single document.

<b>Introduction to Profile Parameters</b>	References to documents providing detailed information on profile parameter usage.
<b>Introduction to Session Parameters</b>	General information on session parameter usage and evaluation.
<b>Profile Parameters Grouped by Category</b>	Summary of profile parameters grouped by category.
Parameters in Alphabetical Order	Descriptions of all profile parameters and session parameters in alphabetical order.



# 1 Introduction to Profile Parameters

---

You specify a Natural profile parameter either dynamically at session start, or statically in the NTPRM parameter macro and additional parameter macros contained in the Natural parameter module.

A profile parameter for which no macro name or macro syntax is indicated in the individual parameter description is defined in the NTPRM macro.

## **NTPRM Macro Syntax**

The NTPRM macro is specified as follows:

```
NTPRM profile-parameter=value, ...
```

where *value* is any parameter setting valid for the specified *profile-parameter*.

In general, you can use the default parameter values. If any of the default values do not suit your requirements, overwrite them with the required values.

For detailed information on using a profile parameter, see the following sections in the *Natural Operations* documentation:

- Profile Parameter Usage
- Natural Parameter Hierarchy
- Assignment of Parameter Values



# 2 Introduction to Session Parameters

---

- Session Parameter Usage ..... 4
- How to Set Session Parameters ..... 4
- Session Parameter Evaluation ..... 6

## Session Parameter Usage

---

In Natural, session parameters are used:

- to specify certain characters,
- to set processing time limits,
- to set a particular response for a given condition,
- to set various size limits,
- to determine various aspects of output reports.

At the installation of Natural, the Natural administrator sets these parameters to default values which are then valid for all users of Natural.

## How to Set Session Parameters

---

Natural session parameters can be set in several ways:

- via the default Natural parameter module, which is set when Natural is installed;
- via dynamic parameters specified when invoking Natural (as described in your *Natural Operations* documentation);
- via a `SET GLOBALS` statement (in reporting mode only);
- via a `FORMAT` statement;
- via parameter specification within statements where parameters also are evaluated, for example, `INPUT, DISPLAY, WRITE`;
- via terminal commands.

Instead of the parameter values `ON` and `OFF`, you can also specify `T` (true) or `F` (false) respectively.

### Changing Session Parameters at Program Level Using the `FORMAT` Statement

You can change certain parameters for the duration of a single program (report). This is done by using a `FORMAT` statement in the program, which will override the session-wide settings for these parameters.

**Example of a FORMAT Statement:**

```
FORMAT AL=10 HC=R
```

Parameters set with a `FORMAT` statement apply until the end of the executed program, unless they are changed with another `FORMAT` statement in the program.

Not all session parameters can be changed at program level, while several parameters that can be specified at program level cannot be specified at session level; most of the latter are parameters which affect the format of an output report.

**Changing Session Parameters at Statement Level**

Most of the parameters you can change with a `FORMAT` statement you can also change for an individual statement; for example, for a particular `DISPLAY`, `WRITE`, `INPUT` or `REINPUT` statement.

This is done by specifying the parameter (in parentheses) after the statement name.

**Example:**

```
DISPLAY (SF=4) NAME JOB-TITLE CURR-CODE SALARY
```

A parameter set at statement level applies only to the statement in which it is specified. The setting at statement level overrides, for that statement only, all other settings of that parameter at other levels.

**Changing Session Parameters at Field Level**

Within a `DISPLAY`, `WRITE`, `INPUT` or `REINPUT` statement, you can also change some parameters for an individual field or output element.

This is done by specifying the parameter (in parentheses) after the field name.

**Example:**

```
DISPLAY NAME (AL=10) JOB-TITLE CURR-CODE SALARY
```

The parameter value then applies only to that field. The setting at field level overrides, for that field only, all other settings of that parameter at other levels. However, only some of the parameters that can be set at statement level can also be set at field level.

## Session Parameter Evaluation

---

Parameters specified with the statements `DISPLAY`, `FORMAT`, `PRINT`, `INPUT`, `REINPUT`, `WRITE`, `WRITE TITLE` and `WRITE TRAILER` are processed during program compilation and are therefore included in the corresponding object module for the program.

The following hierarchy is used for evaluation:

1. Parameters set at element/field (highest priority)
2. Parameters set at statement level
3. Parameters set with a `FORMAT` statement
4. The default parameter settings (lowest priority)

Parameters set with a `SET GLOBALS` statement cause the execution time environment to be modified. These modifications remain in effect until overridden by another `SET GLOBALS` statement.



# 3 Profile Parameters Grouped by Category

---

▪ Batch Mode .....	8
▪ Character Assignments .....	8
▪ Compiler Options .....	9
▪ Database Management .....	9
▪ Date and Time Settings .....	10
▪ Debugging and Tracing .....	10
▪ External Subprograms .....	11
▪ Limits .....	11
▪ Monitoring .....	12
▪ Natural System Files .....	12
▪ Natural with Other Software AG Products .....	13
▪ Performance Optimization .....	14
▪ Output Reports and Work Files .....	14
▪ Remote Procedure Call (RPC) Settings .....	15
▪ Session Control .....	15
▪ Session Initialization and Termination .....	15
▪ Source Management .....	16
▪ Storage Management .....	16
▪ Terminal Communication .....	17
▪ Translation Tables .....	18
▪ Unicode and Code Page Support .....	18
▪ Usage Control and Configuration Settings for Profile Parameters .....	19
▪ Support for Internet and XML .....	19
▪ TP Monitor Interfaces .....	19

## Batch Mode

---

The following profile parameters apply if Natural is used in batch mode:

Parameter	Brief Description
CC	Error processing in batch mode
CPOBJIN	Code page of batch input file
CPPRINT	Code page of batch output file
CPSYNIN	Code page of batch input file for commands
ECHO	Control printing of input data
OBJIN	Use of CMOBJIN as Natural input file
OSP	Parameters for z/OS batch
READER	System logical units for input (z/VSE only)
VSEP	Parameter macro for z/VSE batch

## Character Assignments

---

The following profile parameters can be used to change default character assignments:

Parameter	Brief Description
CVMIN	Control variable modified at input
FC	Filler character for INPUT statement
FCDP	Filler character for dynamically protected input fields
CF	Character for terminal commands
DC	Decimal character
HI	Help character
IA	Input assign character
ID	Input delimiter character
SOSI	Shift-out/shift-in codes for double-byte character set
THSEPCH	Thousands separator character

## Compiler Options

---

The following profile parameters can be used to control the Natural compiler:

Parameter	Brief Description
CMPO	Compilation options
FS	Default format/length setting for user-defined variables
SM	Programming in structured mode
XREF	Creation of XRef data for Natural

## Database Management

---

The following profile parameters can be used to configure databases and control access to databases:

Parameter	Brief Description
ADAACBX	Use of the Extended Adabas Control Block
ADANAME	Name of Adabas link routine
ADAMODE	Adabas interface mode
ADAPRM	Adabas Review support
ADASBV	Adabas security by value
DB	Database types and options
DB2	Parameters for SQL database management system interfaces
DBCLOSE	Database close at session end
DBOPEN	Database open without ETID
DBROLL	Database calls before roll-out
DBUPD	Database updating
ENDBT	Issue BACKOUT TRANSACTION at session end
ET	Execution of END/BACKOUT TRANSACTION statements
ETDB	Database for transaction data
ETEOP	Issue END TRANSACTION at end of program
ETID	User identification for Adabas
ETIO	Issue END TRANSACTION upon terminal I/O
ETSYNC	Issue Syncpoint upon END/BACKOUT TRANSACTION statements
LFILE	Dynamic specification of logical file
OPRB	Database open/close processing for Adabas and VSAM databases

Parameter	Brief Description
RCFIND	Handling of Adabas Response Code 113 for FIND statement
RCGET	Handling of Adabas Response Code 113 for GET statement
RI	Release of Adabas ISNs
TF	Translation of database ID/file number
UDB	User database ID
WH	Adabas wait for record in hold status

## Date and Time Settings

---

The following profile parameters affect the handling of date and time values by Natural as well as the internal date/time used by Natural:

Parameter	Brief Description
DD	Day differential
DFOUT	Date format for output
DFSTACK	Date format for stack
DFTITLE	Date format in default page title
DTFORM	Date format
STACKD	Stack delimiter character
TD	Time differential
YD	Year differential
YSLW	Year sliding window

## Debugging and Tracing

---

The following profile parameters can be used for debugging and/or tracing purposes:

Parameter	Brief Description
CANCEL	Session cancellation with dump
DBGAT	Debug attach server for remote debugging with NaturalONE
DBGERR	Automatic start of debugger at runtime error
DU	Dump generation
DUE	Dump generation for specific errors only
ETRACE	External trace function
ITRACE	Internal trace function

Parameter	Brief Description
PECK	Control error processing of the ECHECK and PCHECK compilation options of the COMPOPT system command
RDC	Configure the Natural Data Collector
RELO	Storage thread relocation
TRACE	Define components to be traced
UPSI	Control of the User Program Switch Indicator (UPSI)

## External Subprograms

The following profile parameters affect the dynamic loading and deletion of non-Natural programs:

Parameter	Brief Description
CDYNAM	Dynamic loading of non-Natural programs
CSTATIC	Programs statically linked to Natural
DELETE	Deletion of dynamically loaded non-Natural programs
LIBNAM	Name of external program load library (BS2000/OSD, z/OS batch and TSO only)
PGP	Properties for external subprograms
RCA	Resolve addresses of static non-Natural programs
RCALIAS	External name definition for non-Natural programs

## Limits

The following profile parameters can be used to prevent a single program from consuming an excessive amount of internal resources:

Parameter	Brief Description
LE	Reaction when limit for processing loop exceeded
LT	Limit for processing loops
MADIO	Maximum database management system interface calls between screen I/O operations
MAXCL	Maximum number of program calls
MAXYEAR	Maximum year for date/time values
MT	Maximum CPU time
OVSIZE	Storage thread overflow size
PD	Number of pages captured by NATPAGE

## Monitoring

The following profile parameters can be used to monitor your applications and resources:

Parameter	Brief Description
O4I	Collect data for Optimize for Infrastructure (only applies if Optimize for Infrastructure is used)
RDC	Configure the Natural Data Collector
RDCEXIT	Define Natural Data Collector user exits
RDCSIZE	Size of buffer for the Natural Data Collector

## Natural System Files

Natural system files are used for the storage of data and programs as described in *Natural System Files* in the *Operations* documentation.

The following profile parameters apply to all system files:

Parameter	Brief Description
DBID	Default database ID of Natural system files
FNR	Default file number of Natural system files
SYSPSW	Default password for Natural system files
SYSCIP	Default cipher key for Natural system files
RFILE	File for recordings
ROSY	Read-only access to Natural system files (FNAT, FUSER and FSEC only)

With the following parameters, you can override the default values for individual system files:

Parameter	Brief Description
FNAT	Natural system file for system programs
FUSER	Natural system file for user programs
FDIC	Predict system file
FSEC	Natural Security system file
FSP00L	Natural Advanced Facilities spool file
FPROF	Natural system file for parameter profiles
FREG	Natural registry system file

## Natural with Other Software AG Products

The following profile parameters are used in connection with other Software AG products:

Product	Parameter	Brief Description
Adabas Text Retrieval	<a href="#">TSIZE</a>	Size of buffer for Adabas Text Retrieval
Con-nect	<a href="#">CSIZE</a>	Size of Con-nect/Con-form buffer area
EntireX Broker	<a href="#">BSIZE</a>	Size of EntireX Broker buffer
Entire DB Engine	<a href="#">ZSIZE</a>	Size of Entire DB Engine buffer
Entire System Server	<a href="#">ASIZE</a>	Entire System Server auxiliary buffer
Entire Transaction Propagator	<a href="#">ETPSIZE</a>	Size of Entire Transaction Propagator buffer
Natural Advanced Facilities	<a href="#">NAFSIZE</a>	Size of Natural Advanced Facilities buffer
	<a href="#">NAFUPF</a>	User profile for Natural Advanced Facilities
Natural Connection	<a href="#">PC</a>	Control of PC access method with Natural Connection
Natural for DB2	<a href="#">DB2</a>	Parameters for SQL database management system interfaces
Natural for SQL/DS Natural SQL Gateway	<a href="#">DB2SIZE</a>	Natural buffer area for DB2 or SQL/DS
Natural for DL/I	<a href="#">DLISIZE</a>	Size of Natural buffer for DL/I
Natural for VSAM	<a href="#">VSAM</a>	Parameters for Natural for VSAM
	<a href="#">VSIZE</a>	Size of buffer for Natural for VSAM
NaturalONE	<a href="#">PDPSIZE</a>	Size of data buffer for the NaturalONE Profiler
	<a href="#">DBGAT</a>	Debug attach server for remote debugging with NaturalONE
Natural Optimizer Compiler	<a href="#">OPT</a>	Control of Natural Optimizer Compiler
Natural RPC	<a href="#">RPC</a>	Remote procedure call settings for Natural RPC
Optimize for Infrastructure	<a href="#">04I</a>	Collect data for Optimize for Infrastructure
Software AG Editor	<a href="#">EDBP</a>	Software AG Editor buffer pool definitions
	<a href="#">EDPSIZE</a>	Size of Software AG Editor auxiliary buffer pool
	<a href="#">SSIZE</a>	Size of buffer for the Software AG Editor
Natural Web I/O Interface	<a href="#">WEBIO</a>	Web I/O interface screen rendering
zIIP Enabler for Natural	<a href="#">ZIIP</a>	zIIP (IBM's System z Integrated Information Processor) processing configuration under z/OS

## Performance Optimization

---

The following profile parameters are used to improve the performance:

Parameter	Brief Description
OPT	Control of Natural Optimizer Compiler (only applies if the Natural Optimizer Compiler is installed)
ZIIP	zIIP (IBM's System z Integrated Information Processor) processing configuration under z/OS (only applies if the zIIP Enabler for Natural is installed)

## Output Reports and Work Files

---

The following profile parameters control standard attributes used during the creation of Natural reports:

Parameter	Brief Description
DL	Display length for output
EJ	Page eject
FAMSTD	Overwriting of print and work file access method assignments
HCAM	Hardcopy access method
HCDEST	Hardcopy output destination
INTENS	Printing of intensified fields
LS	Line size for Natural records
MAINPR	Override default output report number
MP	Maximum number of report pages
PCNTRL	Print control characters
PM	Print mode
PRINT	Printer assignments
PS	Page size for Natural reports
SF	Spacing factor
TQ	Translate quotation marks
TS	Translate output from programs in system libraries
WORK	Work file assignments
ZP	Zero printing



## Remote Procedure Call (RPC) Settings

---

The following profile parameter is used to set up and process remote procedure calls between a client and a server using Natural RPC.

Parameter	Brief Description
RPC	Remote procedure call settings for Natural RPC.

## Session Control

---

The following profile parameters can be used to control Natural sessions:

Parameter	Brief Description
CM	Command mode
ETA	Error transaction program
FREEGDA	Release global data area in utility mode
MENU	Menu mode
NC	Use of Natural system commands
SORT	Control of sort program
STEPLIB	Additional steplib library
SYNERR	Control of syntax errors
UCONMAX	Specify the maximum number of concurrent sessions for a user
ULANG	User language
ZD	Zero-division check

## Session Initialization and Termination

---

The following profile parameters have an influence on the initialization or termination of a Natural session:

Parameter	Brief Description
AUTO	Automatic logon
ENDMSG	Display of session-end message
IMSG	Session initialization error messages
ITERM	Session termination upon initialization error
MENU	Menu mode
NUCNAME	Name of environment-independent nucleus
PROGRAM	Program to receive control after session termination
STACK	Place data/commands on Natural stack
STEPLIB	Additional steplib library

## Source Management

---

The following profile parameters can be used to manage Natural sources:

Parameter	Brief Description
RECAT	Dynamic recataloging
RNCONST	Renumbering of line numbers in constants
SL	Source-line length
SLOCK	Source locking
SYNERR	Control of syntax errors

## Storage Management

---

The following profile parameters affect the Natural buffers and buffer pools:

Parameter	Brief Description
BP82	Buffer pool placeholder when object not found
BPCSIZE	Cache size of Natural buffer pool
BPC64	Cache storage type for Natural buffer pool
BPI	Buffer pool initialization
BPLIST	Name of preload list for Natural buffer pool
BPMETH	Buffer pool space search algorithm
BPNAME	Name of Natural global buffer pool
BPPROP	Global buffer pool propagation

Parameter	Brief Description
BPSFI	Object search sequence in buffer pool
BPSIZE	Size of Natural local buffer pool
BPTXT	Size of text segments in Natural buffer pool
CMPR	General default compression optimization algorithm
DATSIZE	Size of buffer for local data
DS	Size of storage buffer
DSIZE	Size of debug buffer
ESIZE	Size of user buffer extension
ISIZE	Size of initialization buffer
MAXROLL	Number of CMROLL calls before roll-out
MONSIZE	Size of SYSTP monitor buffer
PDPSIZE	Size of data buffer for the NaturalONE Profiler (on NaturalONE servers only)
RDCSIZE	Size of buffer for the Natural Data Collector
RJESIZE	Initial size of NATRJE buffer
RUNSIZE	Size of runtime buffer
THSIZE	Thread size
WPSIZE	Sizes of Natural work pools

## Terminal Communication

The following profile parameters affect the use of Natural on video terminals:

Parameter	Brief Description
ATTN	Attention key interrupt support
CLEAR	Processing of CLEAR key in NEXT mode
DO	Display order of output data
DSC	Data stream compression (for IBM 3270-type terminals)
EMFM	Edit mask free mode
ESCAPE	Ignore terminal commands %% and %
IKEY	Processing of PA keys and PF keys
IM	Input mode
KEY	Value assignments to PA, PF and CLEAR keys
LC	Lower to upper case translation
ML	Position of message line
MSGSF	Display system error messages in full

Parameter	Brief Description
OPF	Overwriting of protected fields by help routines
REINP	Issue internal REINPUT statement for invalid data
RM	Retransmit modified fields
SA	Sound terminal alarm
SOSI	Shift-out/shift-in codes for double-byte character set
TMODEL	IBM 3270 terminal type
TTYPE	Terminal type

## Translation Tables

---

The following profile parameters can be used to overwrite character translation tables used by Natural:

Parameter	Brief Description
CCHAR	Allow output control characters
CCTAB	Printer escape sequence definition
CP	Default code page name
SCTAB	Scanner character type table
TAB	Standard output translation table
TABA1	EBCDIC to ASCII translation table
TABA2	ASCII to EBCDIC translation table
TABL	Translation table for output from SYS libraries
TAB1	Alternative output translation table
TAB2	Alternative input translation table
UTAB1	Lower to upper case translation table
UTAB2	Upper to lower case translation table

## Unicode and Code Page Support

---

The following profile parameter can be used for Unicode and code page support:

Parameter	Brief Description
CFICU	Enables/disables support for Unicode and code pages
CPCVERR	Conversion error

## Usage Control and Configuration Settings for Profile Parameters

The following profile parameters affect the use and the configuration of Natural profile parameters:

Parameter	Brief Description
DYNPARM	Control use of dynamic parameters
PARM	Alternative parameter module
PLOG	Logging of dynamic parameters
PROFILE	Activate dynamic parameter profile
SYS	Activate set of dynamic profile parameters
USER	Restrict use of profile parameters

## Support for Internet and XML

The following profile parameters support internet and XML access:

Parameter	Brief Description
WEBIO	Web I/O interface screen rendering (only applies if the Natural Web I/O Interface is installed)
XML	Activate PARSE XML and REQUEST DOCUMENT statements

## TP Monitor Interfaces

The following profile parameters apply if Natural is used with a TP monitor interface:

Parameter	Brief Description
ASYNNAM	Output system ID for asynchronous processing ( <i>openUTM</i> only)
COMP	Parameters for Com-plete
IMSP	General parameters for the Natural IMS TM Interface
IMSPE	Environment parameters for the Natural IMS TM Interface
IMSPT	Transaction definitions for the Natural IMS TM Interface
OUTDEST	Output destination for asynchronous processing under CICS, Com-plete and <i>openUTM</i>

Parameter	Brief Description
PSEUDO	Pseudo-conversational mode (CICS only)
SENDER	Screen output destination for asynchronous processing under CICS, Com-plete, IMS TM and <i>open</i> UTM
SKEY	Storage protection key
SUBSID	Subsystem ID
TSOP	Parameters for the Natural TSO Interface

# 4 ABLOG – Log Program Execution Errors

---

This profile parameter is used to log all Natural errors that indicate a timeout or an abnormal termination (NAT0953 to NAT0956 errors) during program execution.

The log records include the termination code, the termination address in storage, and the current Natural library, program and statement line number where the error occurred.

<b>Possible settings</b>	ON	The Natural errors NAT0953 to NAT0956 are logged and written to the message log file.
	OFF	The Natural errors NAT0953 to NAT0956 are not logged.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	





# 5 AD - Attribute Definition

---

▪ AD Parameter Syntax .....	24
▪ Field Representation .....	25
▪ Field Alignment .....	25
▪ Field Input/Output Characteristics .....	26
▪ Interpretation of Alphanumeric Fields .....	27
▪ Mandatory Input .....	28
▪ Length of Input Value .....	28
▪ Field Upper/Lower Case Characteristics .....	28
▪ Filler Character .....	29

With this session parameter, you specify field attributes at field/element or statement level.

Related session parameter: [CD - Color Definition](#)

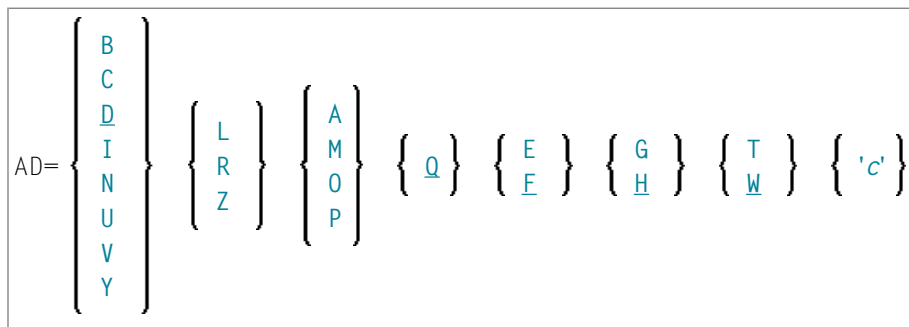
<b>Possible settings</b>	See <a href="#">AD Parameter Syntax</a> .	You can specify multiple attributes in any sequence.
<b>Default setting</b>	See below.	
<b>Applicable statements</b>	FORMAT	
	DISPLAY INPUT NEWPAGE WITH TITLE PRINT REINPUT WRITE WRITE TITLE WRITE TRAILER	Parameter may be specified at statement level and/or at element level.
	ASSIGN CALLNAT CALLDBPROC COMPUTE MOVE PERFORM SEND METHOD	Parameter may be specified at element level, however, only the attributes specified in the relevant statement description can be used.
<b>Applicable command</b>	none	

The following topics are covered below:

## AD Parameter Syntax

```
AD=[field-representation] [field-alignment] [field-i/o-characteristics]
[interpretation-of-alphanumeric-fields] [mandatory-input] [input-value-length]
[field-upper/lower-case] [filler-character]
```

You can specify multiple attributes in any sequence. Possible values are:



The meaning of the attributes and the possible values are explained below.

### Examples:

```
DISPLAY #FIELD A (AD=R)
INPUT #FIELD B (AD=M)
INPUT (AD=IM) #FIELD A #FIELD B
```

## Field Representation

Value	Meaning	Statements	Explanation
B	blinking (*)	ASSIGN	The value of the field is displayed blinking.
C	cursive/italic (*)	COMPUTE	The value of the field is displayed cursive/italic.
D	default intensity	MOVE DISPLAY FORMAT	The value of the field is displayed with normal intensity, that is, not highlighted in any way. This is the default value.
I	intensified	INPUT	The value of the field is displayed intensified.
N	non-display	PRINT	A value entered in the field will not be displayed.
U	underlined	REINPUT	The value of the field is displayed underlined.
V	reverse video (*)	WRITE	The value of the field is displayed reverse video.
Y	dynamic attributes	INPUT DISPLAY PRINT WRITE	Attributes are to be controlled via an attribute control variable (Format C).

\* The field representation attributes marked with an asterisk (\*) require corresponding hardware features, and will be ignored at runtime if these features are not available.

## Field Alignment

Value	Meaning	Statements	Explanation
L	left-justified	DISPLAY FORMAT	The value of the field is displayed left-justified. This is the default value for alphanumeric fields.
R	right-justified	INPUT PRINT REINPUT	The value of the field is displayed right-justified. This is the default value for numeric fields.
Z	leading zeros	WRITE	Numeric values are displayed with leading zeros, right-justified.

## Field Input/Output Characteristics

Value	Meaning	Statements	Explanation
A	input field, non-protected	INPUT FORMAT	The value of the field is to be entered in response to the INPUT statement. This is the default value.
	input only	CALLNAT CALLDBPROC PERFORM SEND METHOD Function Call	<p>If you mark a parameter with AD=A, its value will not be passed to the called object (subprogram, stored procedure, subroutine, dialog, method), but it will receive a value from the called object.</p> <p>For a field defined with BY VALUE in the called object's parameter data area, the calling object cannot receive a value. In this case, AD=A only causes the field to be reset to the low value of the respective format (blanks for alphanumeric, binary zeroes for binary and zeroes for numeric fields) before the object is called.</p> <p>For CALLNAT, AD=A may be useful for remote subprograms executed via Natural RPC in a client/server environment to reduce the load of data sent. If a subprogram is executed locally, AD=A fields will be reset to the low value of the respective format before the object is called.</p> <p>If for SEND METHOD, a method is not implemented in Natural, the behavior depends on the method implementation. The parameter is then passed as an initialized variant. Whether the external component is able to return a value is described in the documentation of the external component. It can also be viewed in the Natural Component Browser.</p>
M	output field, modifiable	INPUT FORMAT	The value of the field is to be displayed during INPUT statement execution, and a different value may be entered by the user. The field is an output field and may be modified.
	modifiable	CALLNAT CALLDBPROC PERFORM SEND METHOD Function Call	<p>By default, the passed value of a parameter can be changed in the called object (subprogram, stored procedure, subroutine, dialog, method) and the changed value passed back to the calling object, where it overwrites the original value.</p> <p>For a field defined with BY VALUE in the called object's parameter data area, no value is passed back.</p> <p>If, for SEND METHOD, a method is <i>not</i> implemented in Natural, the behavior depends on the method implementation. The parameter is then passed BY REFERENCE. Whether the external component accepts a by reference or by value parameter is described in the documentation of the external component. It can also be viewed in the Natural Component Browser.</p>
0	output field, write-protected	INPUT FORMAT	The value of the field is to be displayed during INPUT execution. The field is an output field and may not be modified.

Value	Meaning	Statements	Explanation
	non-modifiable	CALLNAT CALLDBPROC PERFORM SEND METHOD Function Call	<p>If you mark a parameter with AD=0, the passed value can be changed in the called object (subprogram, stored procedure, subroutine, dialog, method), but the changed value cannot be passed back to the calling object; that is, the field in the calling object retains its original value.</p> <p>Internally, AD=0 is processed in the same way as a call-by-value (see BY VALUE in the section Parameter Data Definition in the description of the DEFINE DATA statement).</p> <p>If for SEND METHOD, a method is implemented in Natural, the parameter is treated like it was defined BY VALUE in the method's parameter data area (see the PARAMETER clause of the INTERFACE statement).</p> <p>If for SEND METHOD, a method is <i>not</i> implemented in Natural, the behavior depends on the method implementation. The parameter is then passed BY VALUE. Whether the external component accepts a call by reference or by value parameter is described in the documentation of the external component. It can also be viewed in the Natural Component Browser.</p>
P	temporarily protected	INPUT REINPUT	Used in conjunction with an attribute control variable (Format C), the DY parameter (dynamic attributes), and the REINPUT statement.



**Note:** The Field Input/Output Characteristics A, M and 0 of the AD parameter may be also specified in function calls.

## Interpretation of Alphanumeric Fields

Value	Meaning	Statements	Explanation
Q	display alphanumeric field as if it were a numeric field	ASSIGN COMPUTE MOVE DISPLAY FORMAT INPUT PRINT REINPUT WRITE	<p>This attribute is available on mainframe computers only. A corresponding hardware feature is required.</p> <p>An alphanumeric field is interpreted as if it were a numeric field. If the field is displayed under the scope of profile or session parameter PM=I, the value of the field is interpreted from left to right instead of right to left.</p>

## Mandatory Input

Value	Meaning	Statements	Explanation
E	value mandatory	INPUT FORMAT	A value must be entered in the field in response to an INPUT statement; otherwise an error message will be issued. This is only relevant for input-only fields (AD=A).
F	value optional	INPUT FORMAT	A value can, but need not, be entered in the field in response to an INPUT statement. This is the default value.

## Length of Input Value

Value	Meaning	Statements	Explanation
G	value size	INPUT FORMAT	The value entered in the field in response to an INPUT statement must be of the same length as the field. This is only relevant for input-only fields (AD=A).
H	value size	INPUT FORMAT	The value entered in the field in response to an INPUT statement may be shorter than the field. This is the default value.

## Field Upper/Lower Case Characteristics

Value	Meaning	Statements	Explanation
T	translate lower to upper case	INPUT FORMAT	The value entered is to be translated to upper case.
W	accept lower case	INPUT FORMAT	Lower case values are to be accepted. AD=W is the default value.  <b>Note:</b> To make AD=W effective, you have to specify the value ON for the Natural profile parameter LC.

## Filler Character


Value	Meaning	Statements	Explanation
' c '	filler character	INPUT FORMAT	The empty field is to be filled with the specified character c (for display only) if AD=A (input field, non-protected) or AD=M (output field, modifiable) is specified.

Before the value is displayed for a modifiable field (AD=M), field positions that are not occupied by the value are filled with the specified filler character as follows:

- Leading or trailing positions (depending on the field alignment) are filled for format I, N and P fields.
- Trailing positions are filled for format A fields.

If the user enters a value in response to the INPUT statement, before the value has been assigned to the field,

- both leading and trailing filler characters are removed for format I, N and P fields,
- trailing filler characters are removed for format A fields.

 **Caution:** Filler characters that may occur as part of the value in either leading or trailing position should be avoided to prevent undesired results. For example, if the filler character "0" (zero) is defined for a field of format N5 and the value 00100 is entered as input data, leading and trailing zeroes are removed so that only the value 1 remains, and will be assigned to the field. For the same reason, the minus sign "-" should be avoided as a filler character for numeric fields if negative values are to be entered.

If the filler character is set to blank (X'40'), filling blanks are replaced by X'00' to allow for insertion of characters without having to clear the remainder of the input field before.

In BS2000/OSD environments, X'00' characters are displayed as dots on 97xx type terminals. Their appearance can be changed by means of the SIDA utility or with the configuration utility of the respective terminal emulation.





# 6

## ADACBX – Use of the Extended Adabas Control Block

---

This profile parameter determines whether the Natural nucleus uses ACBX (extended Adabas control block) calls to access Natural system files instead of ACB (classic Adabas control block) calls if running with Adabas Version 8 or above.

<b>Possible settings</b>	ON	The extended Adabas control block (ACBX) is used for Natural system file access.
	OFF	The classic Adabas control block (ACB) is used for Natural system file access.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Important:** If you have Adabas link routine user exits that expect the ACB layout, you must set `ADACBX=OFF` to avoid problems.

ADACBX does not affect Adabas calls submitted by Natural programs. Their use of the ACBX is controlled by the Adabas version specified as the database type with the profile parameter `DB`, for example, `DB=(ADAV8)` for Adabas Version 8. The ACBX is used since Adabas Version 8.

We recommend that you set `ADACBX=ON`. In this case, Natural objects are loaded in chunks of 64 KB instead of 32 KB from the Natural system file thus reducing the number of Adabas calls for large objects. In consequence, you must consider the following:

- The storage requirements in the Natural address space are increased by 64 KB.
- The Adabas `LU` parameter must be set to 64 KB (default) or above.
- The number of Adabas attached buffers may have to be increased.



# 7

## ADAMODE - Adabas Call Interface Mode

---

This Natural profile parameter controls the Adabas call interface mode and the number of Adabas user sessions used by Natural to issue Adabas calls.

<b>Possible settings</b>	See below.
<b>Default setting</b>	2
<b>Dynamic specification</b>	yes
<b>Specification within session</b>	no

The following values are possible for the ADAMODE parameter:

<b>Value</b>	<b>Separate Adabas User Sessions for Nucleus and User Application Database Calls [1]</b>	<b>3GL Program Adabas Calls Use Natural's Adabas Session for User Application Calls [2]</b>	<b>Image Switching in a z/OS Parallel Sysplex Environment Supported [3]</b>
0	No	Yes	No
1	No	No	Yes
2	Yes	No	Yes
3	Yes	Yes	No

### Notes:

#### 1. Separate Adabas User Sessions for Nucleus and User Application Database Calls

##### Two Separate Adabas User Sessions

If Natural uses two separate Adabas user sessions to issue Adabas calls, Natural uses one Adabas user session to handle Adabas calls issued by the Natural nucleus (for example, to load Natural objects from the system file), and the other Adabas user session to issue Adabas calls issued by the user application.

An Adabas timeout (leading to Natural error NAT3009) that occurs for the Adabas user session that is used to handle Adabas calls issued by the Natural nucleus does not affect the user application.

A separate Adabas user queue element (UQE) is generated for each Adabas user session, and it may be necessary to increase the Adabas ADARUN parameter NU.

### **Single Adabas User Session**

If Natural uses only a single Adabas user session, `END TRANSACTION` and `BACKOUT TRANSACTION` statements issued by either the Natural nucleus or the user application affect transactions started by both the Natural nucleus and the user application.

An Adabas timeout (leading to Natural error NAT3009) that occurs for the Adabas user session is always reported to the user application, because it is not possible to check whether the timeout affects the application's transaction state.

If Natural uses a single Adabas user session to handle Adabas calls issued by the Natural nucleus as well as Adabas calls issued by the user application, only one UQE is necessary.

## **2. 3GL Program Adabas Calls Use Natural's Adabas Session for User Application Calls**

### **Calls Using Natural's Adabas Session**

If a 3GL program, which is called from the user application, issues Adabas calls, and if these Adabas calls use Natural's Adabas session for user application calls, these Adabas calls participate in the user application's transaction handling (`END TRANSACTION` and `BACKOUT TRANSACTION` statements), and they are affected by Natural transaction processing related profile parameter settings (see the parameters mentioned below).

### **Calls Not Using Natural's Adabas Session**

If a 3GL program, which is called from the user application, issues Adabas calls, and if these Adabas calls do not use Natural's Adabas session for user application calls, these Adabas calls will not participate in Natural's transaction handling for the Adabas user session. As a consequence, such 3GL programs need to perform their own transaction handling.

## **3. Image Switching in a z/OS Parallel Sysplex Environment Supported**

If image switching in a z/OS Parallel Sysplex environment is supported, the Natural session may, after a terminal I/O operation, seamlessly continue to execute in a z/OS image that is different to the z/OS image where the Natural session has executed before the terminal I/O operation. Installation of the Natural Roll Server is required to support execution in a z/OS Parallel Sysplex environment.

To ascertain support of image switching in a z/OS Parallel Sysplex environment, even if `ADAMODE=0` or `ADAMODE=3` is set, Adabas System Coordinator (product code COR) must be installed.



**Caution:** Setting the value of `ADAMODE` so that image switching in a z/OS Parallel Sysplex environment is not supported may lead to unpredictable results if the Natural session continues execution in a another z/OS image after a terminal I/O operation. Depending on Natural transaction processing related profile parameter settings (see the parameters mentioned below), this may include:

- non-zero Adabas response codes (leading to, for example, Natural error NAT3021),
- database updates that have not yet been committed by an `END TRANSACTION` statement are unintentionally backed out or applied to the database.

Other transaction processing related parameters: [DBCLOSE](#) | [DBOPEN](#) | [ENDBT](#) | [ET](#) | [ETDB](#) | [ETEOP](#) | [ETIO](#) | [ETSYNC](#)

---

# 8

## ADANAME - Name of Adabas Link Routine

---

This Natural profile parameter specifies the name of the Adabas link routine to be used.

<b>Possible settings</b>	1 - 8 characters	Valid module or entry name.
<b>Default setting</b>	ADABAS	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. ADANAME does not apply to *open*UTM and Com-plete.
2. If the Adabas link routine is linked to the Natural parameter module and its entry name is the same as the one specified by ADANAME in the parameter module, the linked routine will be used. If not, the specified link routine will be loaded dynamically. Thus, it is no longer necessary to statically link the Adabas link module to the Natural nucleus.
3. It is possible to run the same Natural nucleus with different Adabas link modules.
4. Under CICS, the Adabas link routine must not be linked to Natural.





## 9 ADAPRM - Adabas Review Support

---

This Natural profile parameter is used to pass Natural session data to Adabas Review within the seventh Adabas buffer.

<b>Possible settings</b>	ON	Natural session data is passed. <b>Note:</b> Set ADAPRM to ON if Adabas Review is installed.
	OFF	No Natural session data is passed.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 10 ADASBV - Adabas Security by Setting

---

This Natural profile parameter can be used to prevent invalid results for accesses to Adabas files that are protected by “security-by-setting”. When a file that is protected by “security-by-setting” is accessed, invalid results may be returned in some cases where no format buffer is generated and passed to Adabas.

<b>Possible settings</b>	ON	Natural session data is passed.  <b>Note:</b> It is recommended that you set ADASBV=ON if you access “security-by-setting”-protected Adabas files. A format buffer is then always passed to Adabas for a database access (even if this is a 2-byte dummy buffer), thus avoiding invalid results.
	OFF	No Natural session data is passed.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 11 AL - Alphanumeric Length for Output

---

With this session parameter, you specify the default output length for an alphanumeric field; that is, when it is specified shorter than the field length, the field will be right-truncated.

<b>Possible settings</b>	1 to $n$	$n$ = value of <b>LS</b> (line size) parameter minus 1
<b>Default setting</b>	none	
<b>Applicable statements</b>	FORMAT	
	DISPLAY INPUT PRINT WRITE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. It is not recommended to use the AL session parameter for input fields (**attribute definition AD=A or AD=M**) in an INPUT statement.
2. Any edit mask specified for a field (see session parameter **EM**) will override the AL session parameter for this field.

## Example:

```
FORMAT AL=20
```

See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.



# 12 ASIZE - Entire System Server Auxiliary Buffer

This Natural profile parameter determines the size of the Entire System Server auxiliary buffer.

<b>Possible settings</b>	64 - 512	Buffer size in KB.  <b>Note:</b>  1. If Entire System Server is to be used, this parameter <i>must</i> be set; see the <i>Entire System Server</i> documentation.  2. The value of 96 is recommended. It should be sufficient for most applications.  3. An ASIZE in excess of 96 KB is needed to enable calls transporting larger amounts of data in multiple value fields to the Entire System Server. For example, the view SEND-EMAIL may contain 3 times 20 e-mail addresses, each address being defined to consist of 128 characters.
	0	If ASIZE=0 is specified or if the requested space is not available, the Entire System Server is not activated.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



## Notes:

1. ASIZE only applies if Entire System Server is installed.
2. As an alternative to ASIZE, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.





# 13 ASPSIZE - Work Area Size of Adabas Stored Procedures and Triggers

---

This Natural profile parameter is obsolete and only accepted for compatibility reasons.



# 14 ASYNNAM - Output System ID for Asynchronous

## Processing (under openUTM)

---

For asynchronous processing between two Natural applications that are running under the TP monitor *openUTM*, this parameter specifies the address of the synchronous application which is used by the asynchronous application to send messages to the synchronous application.

<b>Possible settings</b>	1 - 8 characters.	Valid transaction name.
	blank	No asynchronous processing takes place.
<b>Default setting</b>	blank	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to Natural under *openUTM*.
2. For further information on asynchronous processing under *openUTM*, see *Asynchronous Transaction Processing* in the *Natural TP Monitor Interfaces* documentation.



# 15

## ATTN - Attention Key Interrupt Support

---

This Natural profile parameter controls the use of the attention key for IBM SNA terminals.

<b>Possible settings</b>	ON	The attention key causes Natural processing to be interrupted.
	OFF	The attention key is ignored.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Pressing the attention key can interrupt Natural processing with an appropriate error message (NAT1016).
2. The availability of an attention key depends on the environment and on the terminal type.
3. This functionality is also available for Natural in batch mode under z/VSE to interrupt a batch session; see *NATVSE Attention Interrupts* in the *Operations* documentation.



# 16 AUTO - Automatic Logon

---

This Natural profile parameter causes an automatic logon to a specific library at the start of the Natural session.

<b>Possible settings</b>	ON	An automatic logon is executed at the start of the Natural session.
	OFF	No automatic logon is performed.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	



## Notes:

1. The setting contained in the system variable \*INIT-USER is used as the user ID for the logon.
2. If used with Natural Security, AUTO=ON disables logons with another user ID (see the *Natural Security* documentation for further information).





# 17

## BP82 - Buffer Pool Placeholder when Object not Found

---

This Natural profile parameter specifies whether or not a placeholder is put into the Natural Buffer Pool when an object was not found in a library.

<b>Possible settings</b>	ON	When an object was not found, a placeholder is put into the buffer pool.  <b>Note:</b>  1. From the buffer pool manager's point of view, the placeholder is an ordinary Natural object. For the Natural object loader, it is an indicator that the object does not exist and that there is no need to look for it in the system file.  2. For further details, see <i>Example</i> .
	OFF	When an object was not found, no placeholder is put into the buffer pool.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### Example:

Assume the Natural buffer pool is empty, you have started Natural with the parameter `STEPLIB=Xystep`, made a LOGON to library `XYLIB`, trying to execute the program `XYPROG`, which resides in library `SYSTEM/FUSER`. While loading the program `XYPROG`, Natural searches the object firstly in library `XYLIB`, secondly in library `Xystep`, and finally finds it in `SYSTEM/FUSER`.

When the profile parameter `BPSFI` (*Object Search First in Buffer Pool*) is set to `OFF`, every user doing the same will also make database calls to search for the object `XYPROG` in library `XYLIB` and `Xystep`, but these database calls will never succeed. To prevent these unnecessary database calls, a placeholder is put into the buffer pool.

When you use the SYSBPM utility to look into the buffer pool, you will see the placeholder as an ordinary object:

```

14:34:39          ***** NATURAL SYSBPM UTILITY *****          2011-05-02
BPNAME QA82GBP          - List Objects -          Type Global Nat
BPPROP OFF          Loc DAEF QA82
C  Library  Object    DBID  FNR  Loc  RLD  Use  Max  Reuse  TotalUC  ObjSize  Sto
*
__ XYLIB    XYPROG     10   32  B           1           1    90    4
__ SYSTEM   XYPROG     10   32  B           1           1  2,656    4
__ XYPSTEP  XYPROG     10   32  B           1           1    90    4
    
```

# 18 BPC64 - Buffer Pool Cache Storage Type

---

This Natural profile parameter specifies the type of storage for the buffer pool cache of a local Natural buffer pool.

<b>Possible settings</b>	ON	This indicates that virtual storage above the 2 GB line is to be used for the buffer pool cache.
	OFF	This indicates that a data space is to be used for the buffer pool cache.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



## Notes:

1. This Natural profile parameter is applicable under z/OS only (not for Com-plete).
2. It corresponds to the **C64** subparameter of the **BPI** profile parameter or **NTBPI** macro.
3. Internally, the **BPC64** specification is converted into the equivalent **BPI** specification; for example: **BPC64=ON** is converted into **BPI=(TYPE=NAT,SEQ=0,C64=ON)**.
4. The **BPC64** parameter only applies to the primary Natural buffer pool (**TYPE=NAT, SEQ=0**). In the case of a global buffer pool, it is ignored. If there is a primary buffer pool with **SEQ=0** in the Natural parameter module, only the **C64** setting of this buffer pool is updated.
5. In multi-user environments (for example, under CICS), the **BPC64** profile parameter only affects the very first Natural session which initializes the local buffer pool.
6. For general information on the Natural Buffer Pool, see *Natural Buffer Pool* in the *Operations* documentation.



# 19 BPCSIZE - Cache Size for Natural Buffer Pool

This Natural profile parameter specifies the size of the buffer pool cache (in KB) for a Natural local buffer pool.

<b>Possible settings</b>	0	If BPCSIZE=0 is set, no buffer pool cache is used.
	100 - 2097148 (2 GB - 4 KB)	The buffer pool cache size in KB for cache in data space; that is, with C64=OFF.  <b>Note:</b> The specified value is rounded to the next 4 KB boundary.
	100 - 58720256 (56 GB)	The buffer pool cache size in KB for cache “above the bar”; that is, with C64=ON.  <b>Note:</b> The specified value is rounded to the next 1 MB boundary.
<b>Default setting</b>	0	By default, no buffer pool cache is used.
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



## Notes:

1. This Natural profile parameter is applicable under z/OS and z/VSE only (not for Complete and not for IMS TM).
2. It corresponds to the CSIZE subparameter of the BPI profile parameter or NTBPI macro.
3. Internally, the BPCSIZE specification is converted into the equivalent BPI specification, for example: BPCSIZE=4000 is converted into BPI=(TYPE=NAT,SEQ=0,CSIZE=4000).
4. If the value specified exceeds the possible maximum, the possible maximum value will be taken instead.

5. The `BPCSIZE` parameter applies to the primary Natural buffer pool (`TYPE=NAT`, `SEQ=0`) only. In the case of a Natural global buffer pool, it is ignored. If there is a primary buffer pool with `SEQ=0` in the Natural parameter module, only the cache size setting of this buffer pool is updated.
6. In multi-user environments (for example, under CICS), the `BPCSIZE` parameter affects the very first Natural session only, which initializes the Natural local buffer pool.
7. The type of storage to be used for the buffer pool cache is determined by profile parameter `BPC64` or subparameter `C64` of profile parameter `BPI` or macro `NTBPI`.
8. For more information, see *Buffer Pool Cache* in the *Operations* documentation.

# 20

## BPI - Buffer Pool Initialization

---

- BPI Parameter Syntax ..... 62
- NTBPI Macro Syntax ..... 63
- Keyword Subparameters ..... 63
- Examples of BPI Parameter ..... 69
- Examples of NTBPI Macros ..... 70

This Natural profile parameter is used to assign buffer pools to a Natural session. It corresponds to the `NTBPI` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>BPI Parameter Syntax</i> .	
<b>Default setting</b>	See <i>Keyword Subparameters</i> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTBPI</code> is used instead.
<b>Specification within session</b>	no	



#### Notes:

1. There are several types of buffer pools for different purposes. It is possible to define backup buffer pools (see [examples](#) below).
2. If a buffer pool is unavailable, Natural tries to setup a backup buffer pool of the same type with the next higher sequence number.

The following topics are covered below:

## BPI Parameter Syntax

The BPI parameter is specified as follows:

```
BPI=(keyword-subparameter=value,keyword-subparameter=value,...)
```

Or, to delete all buffer-pool definitions for a certain type, omit `SEQ` and specify:

```
BPI=(TYPE=value,OFF)
```

See *Keyword Subparameters*.



#### Notes:

1. `BPI=(TYPE=NAT,OFF)` deletes all user buffer-pool definitions for Natural; that is, the default values are used for the Natural buffer pool.
2. If `OFF` is used, it must be specified as the last value after `TYPE` and `SEQ`.
3. To dynamically deactivate a buffer-pool definition, use the special value `OFF` as follows: If you use the `BPI` parameter to override an existing buffer pool definition in the Natural parameter module, you must specify new settings in all those subparameters which are to be changed; if you do not, the old settings will still be used. If, for example, you want to change from a global to a local buffer pool, you must specify: `NAME=' '` (blank). If you use the `BPI` parameter to dynamically add a new backup buffer pool definition, you must use the `SEQ` subparameter to



specify a sequence number for it. If you omit the SEQ specification, the definition of the primary buffer pool (SEQ=0) will be overwritten. The NAME, SIZE, LIST, TXTSIZE, CSIZE, METHOD and C64 specifications for the primary buffer pool (SEQ=0) can also be set dynamically with the profile parameters [BPNAME](#), [BPSIZE](#), [BPLIST](#), [BPTEXT](#), [BPCSIZE](#), [BPMETH](#) and [BPC64](#).

## NTBPI Macro Syntax

The NTBPI macro is specified as follows:

```
NTBPI C64=value, *
      CSIZE=value, *
      LIST=value, *
      METHOD=value, *
      NAME=value, *
      SEQ=value, *
      SIZE=value, *
      TXTSIZE=value, *
      TYPE=value
```

See [Keyword Subparameters](#).



**Note:** The value OFF, which is available in the syntax of profile parameter BPI, cannot be specified in the macro NTBPI.

## Keyword Subparameters

[C64](#) | [CSIZE](#) | [LIST](#) | [METHOD](#) | [NAME](#) | [SEQ](#) | [SIZE](#) | [TXTSIZE](#) | [TYPE](#)



### Notes:

1. The keyword subparameters SIZE, CSIZE, TXTSIZE, METHOD and C64 do not apply to global buffer pools. They are honored only for the very first session which initializes a local buffer pool.
2. Under BS2000/OSD, the subparameters SIZE and CSIZE are ignored.

## C64 - Type of Buffer Pool Cache Storage

`C64=value` determines the type of storage to be used for the buffer pool cache.

Value	Explanation
ON	<p>Indicates that a memory object “above the bar” (that is, in 64-bit memory) is to be used for the buffer pool cache.</p> <p>Note that <code>C64=ON</code> is honored only if the prerequisites are met, namely:</p> <ul style="list-style-type: none"> <li>■ z/... architecture hardware,</li> <li>■ operating system z/OS Version 1.2 or higher.</li> </ul> <p>If these prerequisites are not met, the default value is taken.</p>
OFF	<p>Indicates that a data space is to be used for the buffer pool cache.</p> <p>This is the default value.</p>



### Notes:

1. This subparameter applies to Natural local buffer pools (`TYPE=NAT`) under z/OS only (not for Com-plete).
2. A buffer pool cache is used only if BPI subparameter `CSIZE` or profile parameter `BPCSIZE` is set to a non-zero value.
3. The `C64` specification can be overridden dynamically with the profile parameter `BPC64`.

## CSIZE - Size of the Local Buffer Pool Cache

`CSIZE=value` determines the size of the buffer pool cache.

Value	Explanation
0	<p>If <code>BPCSIZE=0</code> is set, no buffer pool cache is used.</p> <p>This is the default value.</p>
100 - 2097148 (2 GB - 4 KB)	<p>The buffer pool cache size in KB for cache in data space; that is, with <code>C64=OFF</code>.</p> <p><b>Note:</b> The specified value is rounded to the next 4 KB boundary.</p>
100 - 58720256 (56 GB)	<p>The buffer pool cache size in KB for cache “above the bar”; that is, with <code>C64=ON</code>.</p> <p><b>Note:</b> The specified value is rounded to the next 1 MB boundary.</p>



### Notes:

1. If the value specified exceeds the possible maximum value, the possible maximum value will be taken instead.

2. The `CSIZE` specification applies to Natural local buffer pools (`TYPE=NAT`) only (not for Complete).
3. Under CICS: The `CSIZE` specification applies to swap pools (`TYPE=SWAP`). The value of the `CSIZE` parameter for a swap pool under CICS must be at least twice the maximum thread size of the associated Natural under CICS environment (see `NCMTGD` macro in the *Natural under CICS* documentation), otherwise the `CSIZE` parameter is ignored. This maximum thread size also has to be provided as roll buffer within the swap pool size specification.
4. The `CSIZE` specification can be overridden dynamically with the profile parameter `BPCSIZE` (only in case of `TYPE=NAT`). To determine the type of storage for the buffer pool cache, subparameter `C64` can be used.
5. Under BS2000/OSD: `CSIZE` is ignored.
6. For further information, see *Buffer Pool Cache* in the *Operations* documentation.

### LIST - Name of Preload List to be Used

`LIST=value` determines the name of the preload list to be used for this buffer pool.

Value	Explanation
1 - 8 characters	The name of the preload list to be used for this buffer pool.
' ' (blank)	If <code>LIST=' '</code> (blank) is set, no preload list is used. This is the default value.



#### Notes:

1. This subparameter applies only to Natural local buffer pools (`TYPE=NAT`).
2. The `LIST` specification can be overridden dynamically with the profile parameter `BPLIST`.
3. For more information on preload lists, see *Preload List* in the *Operations* documentation.
4. Preload lists are maintained with the `SYSBPM` utility; see *Preload List Maintenance* in the *Utilities* documentation.

### METHOD - Search Algorithm for Allocating Space in Buffer Pool

`METHOD=value` determines the algorithm for allocating storage in the buffer pool.

Value	Explanation
S	Indicates that a selection process is to be used for allocating storage. The selection process consists of browsing the whole buffer pool directory and comparing different entries in order to find the most suitable entry. This method was formerly known as "Algorithm 1+2".  This is the default value.
N	Indicates that the next available unused or free space is to be used. The search for the next available space is done from a pointer to directory entries which moves in a wrap around fashion. This method may be used in combination with a buffer pool cache.



**Notes:**

1. This subparameter applies only to Natural local buffer pools (**TYPE=NAT**).
2. The **METHOD** specification can be overridden dynamically with the profile parameter **BPMETH**.
3. For further information, see *Buffer Pool Search Methods* in the *Operations* documentation

**NAME - Name of Global Buffer Pool**

**NAME=***value* determines the name of the global buffer pool.

Value	Explanation
1 - 8 characters	The name of the global buffer pool to be used.
' ' (blank)	A Natural local buffer pool is used.  This is the default value.



**Notes:**

1. This subparameter applies only to Natural global buffer pools, and to swap pools (**TYPE=SWAP**) under CICS.
2. For **TYPE=SWAP**, the name is the swap pool name which is the key of the associated swap pool definitions in the Natural system file **FNAT** or **FUSER**; see parameter **SWPINIT** in *Natural Swap Pool Initialization Control* in the *Operations* documentation.
3. For a Natural local buffer pool, the name is blank.
4. Under BS2000/OSD: An **ADDON** macro with the same value for the keyword subparameter **NAME** is required in the **BS2STUB** used.
5. Under IMS TM: Because a Natural session may be executed in different regions, an editor local buffer pool is not possible, but only an editor global buffer pool.
6. The **NAME** specification can be overridden dynamically with the profile parameter **BPNAME** (with **TYPE=NAT** only).

## SEQ - Sequence Number of Buffer Pool

SEQ=*value* determines the sequence number of the buffer pool.

Value	Explanation
0 or 1 - 9	The sequence number of the buffer pool.
0	This is the default value.



### Notes:

1. The buffer pool defined with the lowest sequence number is called primary buffer pool.
2. For every buffer pool type, except `TYPE=SWAP`, you can define one primary buffer pool and one or more backup buffer pools; that is, alternative buffer pools (of the same type, but with a different sequence number) which will be used if the primary buffer pool is not available at session initialization or cannot be allocated.
3. Buffer pools of the same type are sorted in order of sequence numbers (should two pools of the same type have the same sequence number, they will be sorted in the order in which they are specified).
4. If a requested buffer pool is not available, the buffer pool of the same type with the next higher sequence number will be used instead. If that one is not available either, the one with the next higher number will be used, and so on.

## SIZE - Size of Buffer Pool

SIZE=*value* determines the size of the buffer pool.

Value	Explanation
256 - 2097151	The buffer pool size in KB for Natural buffer pools.
100 - 2097151	The buffer pool size in KB for other buffer pool types
256	This is the default value.



### Notes:

1. This subparameter applies to local buffer pools only.
2. Under CICS: The required “logical” minimum size of a swap pool under CICS computes as total of the `NTSWPRM` macro `SWPSLSZ` parameter slot sizes times their (implicit or explicit) factor plus 2 KB for each logical swap pool. When using a swap pool cache (see `CSIZE` subparameter), additionally the maximum thread size of the associated Natural under CICS environment is required for a roll buffer; that is, it has to be added to the computed value.
3. In case of a Natural buffer pool (`TYPE=NAT`), the `SIZE` specification can be overridden dynamically with the profile parameter `BPSIZE`.

4. Under BS2000/OSD: The `SIZE` specification is ignored.

### TXTSIZE - Size of Buffer Pool Text Segments

`TXTSIZE=value` specifies the size of the segments into which the text pool area of the Natural buffer pool is divided.

Value	Explanation
1, 2, 4, 8, 12 or 16	The size of the buffer pool text segments in KB.
4	This is the default value.



#### Notes:

1. This subparameter applies to local buffer pools of `TYPE=NAT`, `TYPE=SORT`, and `TYPE=DLI`.
2. In multi-user environments (for example, under CICS), the `TXTSIZE` specification only affects the very first Natural session which initializes the local buffer pool.
3. In case of `TYPE=NAT`, the `TXTSIZE` specification can be overridden dynamically with the profile parameter `BPTXT`.

### TYPE - Type of Buffer Pool

`TYPE=value` determines the type of the buffer pool.

Value	Explanation
NAT	Natural buffer pool. This is the default value.
DLI	DL/I buffer pool; see <i>Control Blocks in Separate Buffer Pool</i> in the <i>Natural for DL/I</i> documentation.
EDIT	Software AG Editor buffer pool; see <i>Editor Buffer Pool</i> in the <i>Operations</i> documentation. Alternatively, an editor auxiliary buffer pool can be defined per session; see profile parameter <code>EDPSIZE</code> .
SORT	Sort buffer pool; see also keyword subparameter <code>STORAGE</code> of profile parameter <code>SORT</code> and macro <code>NTSORT</code> .
MON	Buffer pool for the monitoring function ( <code>SYSMON</code> ) of the <code>SYSTP</code> utility; see <i>Natural Monitoring (SYSMON)</i> in the <i>Utilities</i> documentation.
MSG	Message buffer pool; see <i>Message Buffer Pool</i> in the <i>Operations</i> documentation. <b>Note:</b> For this type of buffer pool, only the subparameter <code>NAME</code> will be honored.
SWAP	Buffer pool to hold the Natural CICS swap pool; see <i>Natural Swap Pool under CICS</i> in the <i>TP Monitor Interfaces</i> documentation.



#### Notes:

1. Buffer pools of type NAT, DLI and SORT can be managed with the SYSBPM utility ; see *SYSBPM Utility - Buffer Pool Management* in the *Utilities* documentation.
2. For general information on the Natural buffer pool, see *Natural Buffer Pools* in the *Operations* documentation.

## Examples of BPI Parameter

### Example 1:

```
BPI=(NAME=' ',SIZE=2000,METHOD=N)
```

The primary buffer pool is replaced by a local buffer pool of 2000 KB. This definition is equivalent to:

```
BPNAME=' ',BPSIZE=2000,BPMETH=N
```

### Example 2:

```
BPI=(SEQ=0,NAME=LBP1),BPI=(SEQ=1,NAME=LBP2),BPI=(SEQ=2,SIZE=500)
```

First, Natural tries to allocate a global Natural buffer pool with the name LBP1. If this buffer pool is not found, it tries to allocate LBP2. If this is not found, it allocates a local buffer pool with a size of 500 KB.

### Example 3:

```
BPI=(SEQ=0,TYPE=EDITOR,NAME=LBPE1),BPI=(SEQ=1,TYPE=EDITOR,SIZE=500)
```

First, Natural tries to locate a global editor buffer pool with the name LBPE1. If this is not found, it allocates a local editor buffer pool with a size of 500 KB.

### Example 4:

```
BPI=(TYPE=SWAP,SIZE=500,NAME=SWAPP00L,CSIZE=2000)
```

A Natural local swap pool named SWAPP00L having a size of 500 KB and a cache size of 2000 KB is allocated.

## Examples of NTBPI Macros

---

```
NTBPI TYPE=NAT, *  
      SEQ=0, *  
      NAME=NATBP1  
NTBPI TYPE=NAT, *  
      SEQ=1, *  
      NAME=NATBP2  
NTBPI TYPE=NAT, *  
      SEQ=2, *  
      SIZE=1000, *  
      METHOD=N
```

These examples define multiple Natural buffer pools. If the global buffer pool NATBP1 is not available, the global buffer pool NATBP2 will be used instead. If the latter is not available either, a local buffer pool with a size of 1000 KB will be used.



# 21 BPLIST - Name of Preload List for Natural Buffer Pool

---

This Natural profile parameter specifies the name of a preload list to be used for the Natural buffer pool.

<b>Possible settings</b>	1 - 8 characters or ' ' (blank)	Name of a preload list to be used for the Natural buffer pool. If BPLIST=' ' (blank) is set, no preload list is used.
<b>Default setting</b>	' ' (blank)	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



## Notes:

1. This Natural profile parameter corresponds to the **LIST** specification of the **BPI** profile parameter or the **NTBPI** macro.
2. Internally, the **BPLIST** specification is converted into an equivalent **BPI** specification; for example: **BPLIST=LIST3** is converted into **BPI=(TYPE=NAT, SEQ=0, LIST=LIST3)**.
3. It only applies to the primary Natural buffer pool (**TYPE=NAT, SEQ=0**). If there is a primary buffer pool with **SEQ=0** in the Natural parameter module, only the **LIST** setting of this buffer pool is updated.
4. For general information, see *Natural Buffer Pool* in the *Operations* documentation.



# 22

## BPMETH - Buffer Pool Space Search Algorithm

---

This Natural profile parameter specifies the search algorithm that is to be used for allocating storage in the Natural buffer pool.

<b>Possible settings</b>	S	This indicates that a selection process is to be used for allocating storage. The selection process consists of browsing the whole buffer pool directory and comparing different entries in order to find the most suitable entry. This method was formerly known as Algorithm 1+2.
	N	This indicates that the next available unused or free space is to be used. The search for the next available space is done from a pointer to directory entries which moves in a wrap around fashion. This method may be used in combination with a buffer pool cache.
<b>Default setting</b>	S	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter corresponds to the **METHOD** subparameter of the **BPI** profile parameter or the **NTBPI** macro.
2. Internally, the **BPMETH** specification is converted into the equivalent **BPI** specification; for example: **BPMETH=S** is converted into: **BPI=(TYPE=NAT, SEQ=0, METHOD=S)**.
3. The **BPMETH** parameter only applies to the primary Natural buffer pool (**TYPE=NAT, SEQ=0**). In the case of a global buffer pool, it is ignored. If there is a primary buffer pool with **SEQ=0** in the Natural parameter module, only the **METHOD** setting of this buffer pool is updated.
4. In multi-user environments (for example, under **CICS**), the **BPMETH** profile parameter only affects the very first Natural session which initializes the local buffer pool.

5. For general information on the Natural buffer pool, see *Natural Buffer Pool* in the *Operations* documentation.

# 23

## BPNAME - Name of Natural Global Buffer Pool

---

This Natural profile parameter specifies the name of the Natural global buffer pool.

<b>Possible settings</b>	1 - 8 characters or ' ' (blank)	Name of the Natural global buffer pool. If BPNAME=' ' (blank) is set, a <i>local</i> Natural buffer pool is used.
<b>Default setting</b>	' ' (blank)	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



### Notes:

1. This parameter can only be specified dynamically. It corresponds to the `NAME` specification of the `BPI` profile parameter or the `NTBPI` macro respectively.
2. Internally, the `BPNAME` specification is converted into an equivalent `BPI` specification; for example: `BPNAME=GBP1` is converted into: `BPI=(TYPE=NAT,SEQ=0,NAME=GBP1)`.
3. The `BPNAME` profile parameter only applies to the primary Natural global buffer pool (`TYPE=NAT,SEQ=0`). If there is a primary buffer pool with `SEQ=0` in the Natural parameter module, only the `NAME` setting of this buffer pool is updated.
4. For general information, see *Natural Global Buffer Pool* in the *Operations* documentation.



# 24

## BPPROP - Global Buffer Pool Propagation

This Natural profile parameter controls the propagation of changes to an object in a buffer pool. If a modification occurs affecting a Natural object residing in one (global or local) buffer pool, this modification can be propagated to other global buffer pools - this will ensure the consistency of the buffer pools.

<b>Possible settings</b>	OFF	Changes are not propagated to any other global buffer pool. <b>Note:</b> Under z/OS, any setting other than OFF requires that the Authorized Services Manager is active.
	GLOBAL	Changes are propagated to all other global buffer pools. <b>Note:</b> In a z/OS Parallel Sysplex environment, the changes are only propagated within the current z/OS image. (See <b>Note *</b> )
	PLEX	Changes are propagated to all other global buffer pools of the same name within the entire z/OS Parallel Sysplex environment. (See <b>Note *</b> )
	GPLEX	Changes are propagated to all other global buffer pools within the entire z/OS Parallel Sysplex environment. (See <b>Note *</b> ) <b>Note:</b> Under BS2000/OSD, the setting GPLEX has the same effect as GLOBAL.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies under z/OS and BS2000/OSD.
2. \* Under z/OS, the propagation is always restricted to the Natural subsystem in which the change has occurred; that is, the scope of the propagation, as set with the BPPROP parameter, applies

only within that subsystem, but not to other subsystems. For details, see *Natural Subsystem* in the *Operations* documentation.

3. For further information on the propagation, see *Natural Global Buffer Pool* in the *Operations* documentation.



# 25

## BPSFI - Object Search First in Buffer Pool

This Natural profile parameter determines the sequence in which a requested object that is to be executed is searched for in the buffer pool and in the system file(s).

You can choose between three search sequences:

<b>Possible settings</b>	ON	<p>Search Sequence 1 is used (search buffer pool first for all libraries, then the system file(s)).</p> <p>Natural looks for the object in the following sequence until it is found:</p> <ol style="list-style-type: none"><li>1. in the buffer pool, first in the current library, then in one steplib after another, then in the two SYSTEM libraries;</li><li>2. in the system file(s), first in the current library, then in one steplib after another, then in the two SYSTEM libraries.</li></ol> <p>For performance reasons, it is recommended that you set BPSFI=ON in production environments.</p> <p><b>Caution:</b> If you set BPSFI=ON, make sure that object names are unique across all libraries that are involved in the search. If objects with the same name exist in different libraries being searched, unpredictable results may occur.</p>
	OFF	<p>Search Sequence 2 is used (alternating search in buffer pool and system file(s) for each library).</p> <p>Natural looks for the object in the following sequence until it is found:</p> <ol style="list-style-type: none"><li>1. in the current library, first in the buffer pool, then in the system file(s);</li><li>2. in one steplib after another, first in the buffer pool, then in the system file(s) for each steplib;</li><li>3. in the two SYSTEM libraries, first in the buffer pool, then in the system file(s) for each library.</li></ol>

		BPSFI=OFF is recommended in development environments to always get the most current object from your own current library.
	LIB	Search Sequence 3 is used.  Natural looks for the object in the following sequence until it is found:  1. in the current library, first in the buffer pool, then in the system file(s); 2. in the buffer pool in one steplib after another, then in the two SYSTEM libraries; 3. in the system file(s) in one steplib after another, then in the two SYSTEM libraries.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Notes:**

1. For further information, see *Steplib Libraries* and *Search Sequence for Object Execution* in the *Using Natural* documentation.
2. See also profile parameter [BP82](#) (*Buffer Pool Placeholder when Object not Found*).

# 26

## BPSIZE - Size of Natural Local Buffer Pool

---

This Natural profile parameter specifies the size of the Natural local buffer pool.

<b>Possible settings</b>	256 - 2097151	Size of the Natural local buffer pool in KB.
<b>Default setting</b>	256	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter corresponds to the [SIZE](#) specification of the [BPI](#) profile parameter or the [NTBPI](#) macro.
2. `BPSIZE` only applies to the primary Natural local buffer pool (`TYPE=NAT, SEQ=0`). For a global buffer pool, it is ignored. If there is a primary buffer pool with `SEQ=0` in the Natural parameter module, only the `SIZE` setting of this buffer pool is updated.
3. In multi-user environments (for example, under CICS), the `BPSIZE` parameter only affects the very first Natural session, which initializes the local buffer pool.
4. Under Com-plete, the size of a local buffer pool is set as described in the corresponding Natural installation documentation.
5. Under BS2000/OSD, the size of a local buffer pool is specified with the parameter `SIZE` of the `ADDON` macro.
6. Internally, the `BPSIZE` specification is converted into an equivalent `BPI` specification; for example: `BPSIZE=1500` is converted into `BPI=(TYPE=NAT, SEQ=0, SIZE=1500)`.
7. For general information, see *Natural Buffer Pool* in the *Operations* documentation.



# 27

## BPTTEXT - Size of Text Segments in Natural Buffer Pool

---

This Natural profile parameter specifies the size of the segments into which the text pool area of the Natural buffer pool is divided.

<b>Possible settings</b>	1, 2, 4, 8, 12 or 16	Size of the buffer pool text segments in KB.
<b>Default setting</b>	4	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter corresponds to the **TXTSIZE** specification of the **BPI** profile parameter or the **NTBPI** macro.
2. Internally, the **BPTTEXT** specification is converted into an equivalent **BPI** specification; for example: **BPTTEXT=4** is converted into **BPI=(TYPE=NAT, SEQ=0, TXTSIZE=4)**.
3. The **BPTTEXT** parameter only applies to the primary Natural buffer pool (**TYPE=NAT, SEQ=0**). In the case of a global buffer pool, it is ignored. If there is a primary buffer pool with **SEQ=0** in the Natural parameter module, only the **TXTSIZE** setting of this buffer pool is updated.
4. In multi-user environments (for example, under **CICS**), the **BPTTEXT** parameter only affects the very first Natural session, which initializes the local buffer pool.
5. For general information on the Natural buffer pool, see *Natural Buffer Pool* in the *Operations* documentation.



# 28

## BSIZE - Size of EntireX Broker Buffer

---

This Natural profile parameter specifies the size of the EntireX Broker buffer.

<b>Possible settings</b>	1 - 64	Buffer size in KB.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies if EntireX Broker is installed.
2. Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.
3. Currently, if EntireX Broker is used, EntireX Broker specifies the buffer size automatically.





# 29 BX - Box Definition

---

With this session parameter, you specify which parts of a box are to be displayed for field outlining.



## Notes:

1. Outlining (“boxing”) is the capability to generate a line around certain fields when they are displayed on the terminal screen. Drawing such boxes around fields is another method of showing the user the lengths of fields and their positions on the screen. The outlining feature is only available on certain types of terminals, usually those which also support the display of double-byte character sets. If the terminal used does not support outlining, this parameter will be ignored at execution time.
2. See also terminal command %D=.

<b>Possible settings</b>	T	Top horizontal line. See Note 1.
	B	Bottom horizontal line. See Note 1.
	L	Lefthand vertical line. See Notes 1 and 2.
	R	Righthand vertical line. See Notes 1 and 2.
	ON	Corresponds to BX=TBLR.
	OFF	Causes no boxes to be drawn around the fields concerned.
<b>Default setting</b>	OFF	
<b>Applicable statements</b>	FORMAT	
	DISPLAY INPUT WRITE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. You can specify the values T, B, L, R in any order.

2. If you use the session parameter settings `BX=L` or `BX=R`, you should switch off Natural's screen optimization using the profile parameter setting `DSC=OFF` or the Natural terminal command `%R0`.

**Example:**

```
DISPLAY #FIELD1 (BX=RLT) /  
        #FIELD2 (BX=TLRB)
```

# 30

## CANCEL - Session Cancellation with Dump

---

This Natural profile parameter can be used to specify a character string that will cause the Natural session to be terminated with a dump. This may be useful for debugging purposes.

<b>Possible settings</b>	1 - 8 characters	When you enter this character string in any input field within your Natural session (beginning in the first input field), the session will be terminated immediately and a dump will be produced.
<b>Default setting</b>	*CANCEL	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 31 CC - Error Processing in Batch Mode

---

This Natural profile and session parameter specifies the action to be taken if an error is detected during the compilation/execution of a Natural program in batch mode.

<b>Possible settings</b>	ON	Natural flushes the input data stream for the batch input files CMSYNIN and CMOBJIN until a line containing %% in the first two positions is encountered or until an end-of-file condition is detected. If more data are available in the input stream, Natural resumes reading after the line containing %%.	
	OFF	Natural attempts to process the next program (or command) in the input stream.	
<b>Default setting</b>	OFF		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable Statements:	SET GLOBALS
		Applicable command:	GLOBALS
<b>Application programming interface</b>	USR1005N		



## Notes:

1. This Natural profile and session parameter only applies in batch mode.
2. It does not apply if user-written error-handling routines are used.
3. Within a Natural session, the profile parameter CC can be overridden by the session parameter CC.
4. When a Natural session terminates, Return Code 4 is passed to the invoking program with Register 15 if an error is detected (regardless of the CC setting).



# 32

## CCHAR - Allow Output Control Characters

To avoid screen I/O errors, Natural automatically translates the output control characters x'01' through x'3F' to '?'. In some cases, however, certain control characters are required for special purposes

This Natural profile parameter allows you to define hexadecimal control characters for primary I/O to be passed through unchanged. This overwrites the definitions in the output translation tables `NTTAB`, `NTTAB1` and `NTTABL` as contained in the configuration module `NATCONFIG` or defined by the corresponding dynamic profile parameter or by the corresponding macro in the Natural parameter module. It avoids warning message `NAT7021` during session initialization if profile parameter `CFICU` is set to `ON`.

<b>Possible settings</b>	<i>a1</i> ( <i>a1</i> , <i>a2</i> , ...)	The following can be specified: a single hex character or a list of hex characters enclosed in brackets can be specified. The hex characters must be within x'01' through x'3F'. A hex character range <i>a1</i> - <i>a2</i> is allowed instead of a hex character.
	OFF	OFF resets any previous CCHAR definitions.
<b>Default setting</b>	no	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** For additional print files, the subparameter `CCHAR` of profile parameter `PRINT` can be used.

**Examples:**

```
CCHAR=17  
CCHAR=19-1B  
CCHAR=(03-06,0A,1B,3A-3F)
```



# 33

## CCTAB - Printer Escape Sequence Definition

---

- CCTAB Parameter Syntax ..... 96
- NTCCTAB Macro Syntax ..... 98
- String Syntax for OPN, CLS, CODE, CS, CSS or CSE ..... 98
- Proportional Fonts ..... 99
- Examples of CCTAB Parameter ..... 99
- Examples of NTCCTAB Macros ..... 99

This Natural profile parameter is used to set up a table of printer-control sequences, which is used for printing additional reports and hardcopies. It corresponds to the `NTCCTAB` macro in the Natural parameter module.

- It is possible to either translate Natural field attributes into escape sequences or specify special characters to be translated into escape sequences.
- In addition, strings can be specified which are always sent as the first output record after an open operation or as the last output record before a close operation.
- This means that by using the right profile name, you can activate your printout either in portrait mode or in landscape. Then you can use all print features of this device by using simple attributes in Natural. This makes even bar-code printing or double-height printing possible.
- CCTAB defines tables which are used to recognize special characters in output fields and replace them with the defined control sequences. The parameter also defines the Natural attributes which are used to insert the defined control sequences.

<b>Possible settings</b>	See <i>CCTAB Parameter Syntax</i> .	
<b>Default setting</b>	As specified within the macro <code>NTCCTAB</code> in <code>NATCONFIG</code> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTCCTAB</code> is used instead.
<b>Specification within session</b>	no	

The following topics are covered below:

## CCTAB Parameter Syntax

---

For each profile, a separate `CCTAB` parameter must be specified. The `CCTAB` parameter can be specified in three variants:

### 1st Variant

```
CCTAB=(name,OPN='xxxxx',CLS='yyyyy')
```

Where:

<i>name</i>	is the name of the profile form; that is, the DEFINE PRINTER ( <i>n</i> ) OUTPUT ' <i>nnnnn</i> ' PROFILE ' <i>name</i> ', which is required and which has a maximum length of 8 bytes.
OPN='xxxxx'	is optional and defines a data string (up to 250 bytes) which is sent to the printer with each open operation.
CLS='yyyyy'	is optional and defines a data string (up to 250 bytes) which is sent to the printer before each close operation.



**Note:** OPN and CLS can be specified in any sequence.

## 2nd Variant

CCTAB=(*name*,CODE='n',CS='xxx')

Where:

CODE='n'	is a character which is recognized by Natural once it appears in the output string.
CS='xxx'	is the string to replace the CODE character.



**Note:** The CS subparameter must follow the CODE subparameter.

## 3rd Variant

CCTAB=(*name*,ATR=*nnnn*,CSS='xxx',CSE='yyy')

Where:

ATR='nnnn'	is the Natural internal field attribute. The name is defined by the macro NAMATR.
CSS='xxx'	is the string (up to 20 bytes) which is inserted before the field. CSS is mandatory.
CSE='yyy'	is the string (up to 20 bytes) which is inserted after the field. CSE is mandatory.



**Note:** The CSS and CSE subparameters must follow the ATR subparameter.

## NTCCTAB Macro Syntax

---

The NTCCTAB macro can be specified in three variants:

### 1st Variant

```
NTCCTAB name, *  
    OPN='xxxxx', *  
    CLS='yyyyy'
```

For details, refer to the CCTAB parameter syntax, [1st Variant](#).

### 2nd Variant

```
NTCCTAB name, *  
    CODE='n', *  
    CS='xxxx'
```

For details, refer to the CCTAB parameter syntax, [2nd Variant](#).

### 3rd Variant

```
NTCCTAB name, *  
    ATR=nnnn, *  
    CSS='xxxx', *  
    CSE='yyyy'
```

For details, refer to the CCTAB parameter syntax, [3rd Variant](#).

## String Syntax for OPN, CLS, CODE, CS, CSS or CSE

---

You specify character strings either as characters (enclosed in apostrophes) or as the corresponding hexadecimal representation of the characters (without apostrophes).

## Proportional Fonts

If you use proportional fonts, be sure to return to a fixed-spacing font before using tables where you need correct positioning.

## Examples of CCTAB Parameter

```
CCTAB=(DBCST, CODE=0E, CS=400E, CODE=0F, CS=0F40, ATR=P5DBCS, CSS=0E, CSE=0F)
```

```
CCTAB=(OPN=27C5274DA2F1F188275093F0D6, CLS='LAST LINE')
```

## Examples of NTCCTAB Macros

```
NTCCTAB DBCST
NTCCTAB CODE=0E, CS=400E
NTCCTAB CODE=0F, CS=0F40<
NTCCTAB ATR=P5DBCS, CSS=0E, CSE=0F
```

```
NTCCTAB TEST, OPN=27C5274DA2F1F188275093F0D6, CLS='LAST LINE'
NTCCTAB CODE='<', CS=' B(SOB'
NTCCTAB CODE='>', CS='B(S3B '
NTCCTAB CODE='(', CS=' B(S1S'
NTCCTAB CODE=')', CS='B(SOS '
NTCCTAB ATR=P2UL, CSS=' B&&DD', CSE='B&&DS'
NTCCTAB ATR=P2UL, CSS=405FF1C25084C4, CSE=5FF1C250847C
NTCCTAB ATR=P2ITAL, CSS=' B(S1S', CSE='B(SOS'
NTCCTAB ATR=P1HIGH, CSS=' B(S3B', CSE='B(SOB'
NTCCTAB ATR=P2RVID, CSS=' B(S-3B', CSE='B(SOB'
```

---

# 34 CD - Color Definition

---

With this session parameter, you specify the color attributes for fields. If no color screen is used, this parameter will be ignored at runtime.

Related session parameter: [AD - Attribute Definition](#)

<b>Possible settings</b>	BL	blue
	GR	green
	NE	neutral
	PI	pink
	RE	red
	TU	turquoise
	YE	yellow
<b>Default setting</b>	NE	
<b>Applicable statements</b>	FORMAT	
	DISPLAY INPUT PRINT WRITE	Parameter may be specified at statement level and/or at element level.
	ASSIGN MOVE REINPUT	Parameter may be specified at statement level.
<b>Applicable command</b>	none	

**Example:**

```
INPUT (CD=RE) #A #B
```



# 35

## CDYNAM - Dynamic Loading of Non-Natural Programs

---

This Natural profile parameter sets the limit for the number of non-Natural programs allowed to be loaded simultaneously during a Natural session. If the specified limit is reached, Natural returns error message NAT0920 indicating that the requested non-Natural programs cannot be loaded dynamically.

Non-Natural programs can only be loaded again after the previously loaded non-Natural programs are deleted. The profile parameter **DELETE** determines when non-Natural programs are deleted after the dynamic loading.

<b>Possible settings</b>	0	Dynamic loading of non-Natural programs is not allowed.
	1 - 1024	Non-Natural programs can be loaded dynamically up to at least the specified number.  The number of programs actually loaded may exceed the specified number depending on the space available in internal program tables.
<b>Default setting</b>	5	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 36

## CF - Character for Terminal Commands

This Natural profile and session parameter specifies the control character for Natural terminal commands; that is, the character which is to be used as the first character of any terminal command.

<b>Possible settings</b>	any special character	A terminal command must begin with the character specified here. The character specified with the <code>CF</code> parameter <ul style="list-style-type: none"> <li>■ must not be the same as the one specified with the <code>HI</code> parameter (help character) or <code>IA</code> parameter (input assign character).</li> <li>■ should not be the same as the one specified with the <code>DC</code> parameter (decimal character) or <code>ID</code> parameter (input delimiter character).</li> <li>■ In the map editor, the control character for terminal commands is always “%” (so as to avoid conflicts with delimiter characters used in maps), no matter which character is defined with the <code>CF</code> parameter.</li> </ul>	
	OFF	No control character for terminal commands is available. Terminal commands issued with <code>SET CONTROL</code> statements, however, are still accepted.	
<b>Default setting</b>	%	A terminal command must begin with the character “%”.	
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable statements:	SET GLOBALS
		Applicable command:	GLOBALS
<b>Application programming interface</b>	USR0350N, USR1005N *	* Recommended.	



### Notes:

1. Within a Natural session, the profile parameter `CF` can be overridden by the session parameter `CF`.

2. Under Natural Security, the setting of this parameter can be overridden by the *Session Parameters* option of the Library Profile.

# 37

## CFICU - Unicode and Code Page Support

---

- CFICU Parameter Syntax ..... 108
- NTCFICU Macro Syntax ..... 109
- Keyword Subparameters ..... 109
- Example of CFICU Parameter ..... 113
- Example of NTCFICU Macro ..... 113

This Natural profile parameter is required to enable Unicode and code page support for various Unicode settings, for example, if variables with format U or the statement `MOVE ENCODED` are to be used. It corresponds to the `NTCFICU` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>CFICU Parameter Syntax</i> .	
<b>Default setting</b>	ON or OFF	Enables or disables the Unicode and code page support.  The default value is OFF when profile parameter CP is set to OFF. Otherwise, the default value is ON.
<b>Dynamic specification</b>	yes	The parameter CFICU can only be specified dynamically. In the Natural parameter module, the macro <code>NTCFICU</code> is used instead.
<b>Specification within session</b>	no	



#### Notes:

1. `CFICU=ON` is enforced when profile parameter CP is set to any value other than OFF.
2. For further information, see *Profile Parameters and Macros* in the *Unicode and Code Page Support* documentation.

The following topics are covered below:

## CFICU Parameter Syntax

The `CFICU` profile parameter is specified as follows:

```
CFICU=(ON,keyword-subparameter=value,keyword-subparameter=value,...)
```

Or:

```
CFICU=ON
```

Or:

```
CFICU=(OFF,keyword-subparameter=value,keyword-subparameter=value,...)
```

Or:

CFICU=OFF

See [Keyword Subparameters](#).

## NTCFICU Macro Syntax

The NTCFICU macro is specified as follows:

```

NTCFICU ON, *
    CNVNORM=value, *
    COLLATE=value, *
    COLNORM=value, *
    CPOPT=value, *
    DATFILE=value, *
    DATITEM=value, *
    LOCALE=value1_value2

```

Or:

```
NTCFICU ON
```

Or:

```
NTCFICU OFF
```

See [Keyword Subparameters](#).

## Keyword Subparameters

[CNVNORM](#) | [COLLATE](#) | [COLNORM](#) | [CPOPT](#) | [DATFILE](#) | [DATITEM](#) | [LOCALE](#)

### CNVNORM - Normalization before Conversion

CNVNORM=value activates/deactivates normalization before conversion.

Value	Explanation
ON	Enable normalization before conversion.
OFF	Disable normalization before conversion.  <b>Note:</b> When CNVNORM=OFF, the MOVE NORMALIZED statement can be used to normalize selected strings.  This is the default value.

**Notes:**

1. The German character “ä”, for example, can be represented in Unicode as U+00E4 or by using a combining character as U+0061, U+0308. Conversion to a code page considers the combined “ä” (U+0061 U+0308) as two code points and produces an “a” and a substitution character, if U+0308 is no valid character of the target code page. Normalization before conversion creates one code point U+00E4 from the combined code points U+0061 U+0308 and the subsequent conversion will deliver the result “ä”.
2. The parameter is honored whenever a conversion from U to A format is performed, for example MOVE U TO A or DISPLAY U, when the output device is a terminal emulation. The additional operation consumes of course additional storage as well as additional CPU time.

**COLLATE - Collation Services**

COLLATE=*value* determines the collation service used.

Value	Explanation
ON	Use Locale ID and ICU's collation services to compare Unicode strings. This is the default value.
OFF	Use ICU's simple Unicode compare.



**Note:** Collation is the process of ordering units of textual information (alphabetic sorting). Collation is usually specific to a particular language.

Examples:

- The character “Ä” is sorted in German locale between A and “B”, but in Swedish locale it is sorted after “Z”.
- In Lithuanian, “y” is sorted between “i” and “k”.

**COLNORM - Normalization Check of Collation Services**

COLNORM=*value* can be used to enable or disable the normalization check.

Value	Explanation
ON	Check for un-normalized text.
OFF	Disable check for un-normalized text. This is the default value.

**Notes:**



1. Normalization is the process of removing alternate representations of equivalent sequences from textual data, to convert data into a form that can be binary-compared for equivalence. The ICU Collation Service handles un-normalized text properly, producing the same results as if the text were normalized. This maximizes performance for the majority of text that does require normalization. If Unicode data is known with certainty not to contain un-normalized text, then even the overhead checking for normalization can be eliminated.
2. This subparameter is honored only if subparameter `COLLATE` is set to `ON`.

### CPOPT - Fast Code Page Conversion

`CPOPT=value` can be used to optimize the conversion performance.

Value	Explanation
ON	Use internal translation tables instead of ICU functions, if possible.
OFF	Use ICU functions in any case.  This is the default value.



**Note:** By default, a conversion from alpha to Unicode format and vice versa is performed by calling ICU functions. Certain code pages are mapping characters to Unicode with 1:1 relationship. In this case, the conversion performance can be increased by using internal translation tables rather than ICU functions.

### DATFILE - Additional Data Libraries

`DATFILE=value` can be used to define the name of an optional ICU data library.

Value	Explanation
1 - 8 characters or OFF	The name of the ICU data library.
OFF	No additional ICU data library is defined. The default ICU data library is used, which is part of the ICS module (see the <i>Unicode and Code Page Support</i> documentation).  This is the default value.



#### Notes:

1. The ICU data library must be eligible for dynamic loading (see profile parameters `RCA` and `RCALIAS` for more information).
2. The ICU data library contains the converter mapping tables, collation rules, break iterator rules and other locale data.

3. The ICU development kit provides tools to build data libraries that comply with particular requirements. Refer to the chapter *ICU Data* in the *ICU User Guide* at <http://userguide.icu-project.org/icudata> for more information.
4. You can assign only one ICU data library to a Natural session, but you can assign different data libraries to different Natural sessions. The ICS module supports up to ten different ICU data libraries. ICS searches all available ICU data libraries for a requested item, for example, a converter.
5. The version of the ICU data library and the ICU version must match. If the data library does not match the ICU version, Natural issues the error message NAT3418 with return code 80 during session initialization.

### DATITEM - Load Method for ICU Data Items

DATITEM=*value* can be used to determine the method to load ICU data items under CICS and Complete. For information on ICU data items, see the relevant section in the *Unicode and Code Page Support* documentation.

Value	Explanation
SVC	The ICU data items are loaded with the SVC instruction of the operating system.
NONE	The ICU data items are loaded with the functions provided by the TP system.  This is the default value.



#### Notes:

1. If you use DATITEM=NONE under Complete, you must set the keyword parameter THREAD-ESQA-SIZE=15K (or a size greater than 15 KB) in the startup options for your Complete.
2. If you use DATITEM=NONE under CICS, you must add one PPT entry for each ICU data item.

### LOCALE - Locale ID

LOCALE=*value1\_value2* determines the Locale ID.

Value	Explanation
<i>value1_value2</i>	<i>value1</i> is a 2- or 3-byte language code of lower-case characters. If specified in upper case, it will be translated into lower case automatically.  <i>value2</i> is a 2- or 3-byte region code of upper-case characters to classify the language.
en_US	This is the default value.



**Note:** The Locale ID is used by ICU's Collation Service to consider language and even region-dependent features of collation. The language code of the Locale ID follows ISO639, and the region code follows ISO 3166.

### Examples of Language Code and Reason Code Pairs:

en_US	English (United States)
en_UK	English (United Kingdom)
de_DE	German (Germany)
de_AT	German (Austria)
de_CH	German (Switzerland)
sv_SE	Scandinavian (Sweden)

### Example of CFICU Parameter

```
CFICU=(COLNORM=ON,LOCALE='de_DE',DATFILE=TEST15)
```

### Example of NTCFICU Macro

```
NTCFICU COLNORM=ON, *  
        LOCALE=de_DE, *  
        DATFILE=TEST15
```



# 38

## CFWSIZE (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 39

## CLEAR - Processing of CLEAR Key in NEXT Mode

---

This Natural profile parameter causes Natural to execute a specific Natural terminal command whenever CLEAR is pressed during program execution in NEXT mode.

<b>Possible settings</b>	any character	The default action can be overridden by supplying a character which, when appended to the terminal-command control character (as specified with the CF parameter), forms a valid Natural terminal command.
<b>Default setting</b>	%	By default, when the CLEAR key is pressed, Natural responds as if the user had entered the terminal command %%.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.

### Example:

```
CF=%  
CLEAR=R
```

Natural executes the terminal command %R when the CLEAR key is pressed in NEXT mode.





# 40

## CM - Command Mode

---

This Natural profile parameter can be used to suppress Natural command mode (NEXT and MORE).

<b>Possible settings</b>	ON	NEXT and MORE are available for command input.
	OFF	The Natural session will be terminated whenever NEXT is encountered; the MORE line will be write-protected (no input possible).
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 41

## CMPO - Compilation Options

---

▪ CMPO Parameter Syntax .....	122
▪ NTCMPO Macro Syntax .....	122
▪ Keyword Subparameters .....	123
▪ Example of CMPO Parameter .....	124
▪ Example of NTCMPO Macro .....	124

This Natural profile parameter and its keyword subparameters can be used at session start to specify dynamically or to override the same compiler options which you can specify statically with the `NTCMPO` macro in the Natural parameter module or, during an active session, with the system command `COMPOPT`.

<b>Possible settings</b>	See <i>CMPO Parameter Syntax</i> .	
<b>Default setting</b>	Identical to the corresponding <code>COMPOPT</code> options. See <i>Keyword Subparameters</i> or <code>COMPOPT</code> options.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTCMPO</code> is used instead.
<b>Specification within session</b>	yes	Use system command <code>COMPOPT</code> .

The following topics are covered below:

## CMPO Parameter Syntax

---

The parameter syntax of `CMPO` is as follows:

```
CMPO=(keyword-subparameter=value,keyword-subparameter=value,...)
```



**Notes:**

1. The **keyword subparameters** are functionally identical to the compiler options that can be specified within the session, using the system command `COMPOPT`.
2. Each keyword subparameter can take the value `ON` or `OFF`, except for `GFID`, which can also take the value `VID`.
3. For further information such as default values and functional descriptions, refer to system command `COMPOPT` in the *System Commands* documentation.

## NTCMPO Macro Syntax

---

The syntax of the `NTCMPO` macro in the Natural parameter module is as follows:

```

NTCMPO  CHKRULE=value,      *
         CPAGE=value,        *
         DB2ARRY=value,     *
         DB2BIN=value,      *
         DB2TSTI=value,    *
         DBSHORT=value,    *
         ECHECK=value,     *
         GDASC=value,      *
         GFID=value,       *
         KCHECK=value,     *
         LOWSRCE=value,   *
         LUWCOMP=value,   *
         MASKCME=value,   *
         MAXPREC=value,   *
         MEMOPT=value,    *
         PCHECK=value,    *
         PSIGNF=value,    *
         THSEP=value,     *
         TQMARK=value,   *
         TSENABL=value

```



#### Notes:

1. The keyword subparameters are functionally identical to the compiler options that can be specified within the session, using the system command `COMPOPT`.
2. Each keyword subparameter can take the value `ON` or `OFF`, except for `GFID`, which can also have the value `VID`.
3. In the `NTCMPO` macro, the keyword subparameters can be specified in any sequence.
4. For further information such as default values and functional descriptions, refer to system command `COMPOPT` in the *System Commands* documentation.

## Keyword Subparameters

CHKRULE | CPAGE | DB2ARRY | DB2BIN | DB2TSTI | DBSHORT | ECHECK | GDASC | GFID | KCHECK |  
 LOWSRCE | LUWCOMP | MASKCME | MAXPREC | MEMOPT | PCHECK | PSIGNF | THSEP | TQMARK | TSENABL

For a complete description of the compiler options, refer to the system command `COMPOPT` in the *System Commands* documentation. The default values indicated there also apply to the corresponding keyword subparameters of `CMPO` and `NTCMPO`.

## Example of CMPO Parameter

---

```
CMPO=(KCHECK=ON,PCHECK=ON)
```

## Example of NTCMPO Macro

---

```
NTCMPO KCHECK=ON,  
        PCHECK=ON
```

\*

# 42

## CMPR - General Default Compression Optimization

### Algorithm

---

This Natural profile parameter enables the Natural administrator to define the general default compression optimization in order to preserve main storage for the sessions which are currently processing and to improve the performance of Natural.

In addition, the type of storage compression optimization can be defined specifically for individual buffer types, using the parameter `CMPR` of the `NTBUFID` macro in the `NATCONFIG` module. The setting of this macro parameter overrides the general default setting of profile parameter `CMPR`. For further information, see *Customization of Buffer Characteristics* in the *Operations* documentation.

<b>Possible settings</b>	OPT0	Compression without optimization
	OPT1	Compression with optimization of identical characters from the buffer used low end and high end.
	OPT2	Compression with optimization by tiles with identical characters. The tile size is 128 bytes.
	(OPT2, <i>nnn</i> )	Compression with optimization by tiles with identical characters. The tile size is a multiple of 128 bytes.  <i>nnn</i> determines the tile size by multiplying with 128. Possible values: 1-255.  Example: (OPT2, 5) yields a tile size of 640 bytes.
<b>Default setting</b>	OPT2	This is a synonym for (OPT2, 1).
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	





# 43 COMP - Parameters for Natural Complete/SMARTS

## Interface

---

▪ COMP Parameter Syntax .....	128
▪ NTCOMP Macro Syntax .....	128
▪ Keyword Subparameters .....	129
▪ Example of COMP Parameter .....	133
▪ Example of NTCOMP Macro .....	133

This Natural profile parameter is used to specify the parameters for the Natural Com-plete/SMARTS Interface. It corresponds to the `NTCOMP` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">COMP Parameter Syntax</a> .	
<b>Default setting</b>	See <a href="#">Keyword Subparameters</a> .	
<b>Dynamic specification</b>	yes	The parameter <code>COMP</code> can only be specified dynamically. In the Natural parameter module, use the macro <code>NTCOMP</code> .
<b>Specification within session</b>	no	



**Note:** For information on the Natural Com-plete/SMARTS Interface, see *Natural under Com-plete/SMARTS* in the *TP Monitor Interfaces* documentation.

## COMP Parameter Syntax

---

The `COMP` parameter is specified as follows:

```
COMP=(keyword-subparameter=value,keyword-subparameter=value,...)
```

See [Keyword Subparameters](#).

## NTCOMP Macro Syntax

---

The `NTCOMP` macro is specified as follows:

```
NTCOMP EXIT=value, *
        HC DTID=value, *
        IN ITID=value, *
        LC=value, *
        LE370=value, *
        MSGHDR=value, *
        NTHSIZE=value, *
        SERVER=value, *
        SPIEA=value, *
        THABOVE=value, *
        TTYxxx=value, *
        UCTRAN=value, *
        U2PRINT=value
```

See [Keyword Subparameters](#).

## Keyword Subparameters

EXIT | HCDTID | INITID | LC | LE370 | MSGHDR | NTHSIZE | SERVER | SPIEA | THABOVE | TTY<sub>xxx</sub> | UCTRAN | U2PRINT

### EXIT - User Exit Module Name

EXIT=*value* defines a user exit module name which can be called during a session initialization before Natural is initialized.

Value:	Explanation:
1 - 8 characters, or ' ' (blank)	Name of user exit.
' ' (blank)	No user exit is used. This is the default value.

### HCDTID - Initialization of Hardcopy Destination

HCDTID=*value* controls the initialization of the hardcopy destination.

Value:	Explanation:
ON	The hardcopy destination is initialized with the terminal ID.
OFF	The hardcopy destination corresponds to the logical terminal name. This is the default value.

### INITID - Content of \*INIT-ID

INITID=*value* controls the content of the system variable \*INIT-ID.

Value:	Explanation:
TIBNAM	*INIT-ID contains the logical unit name of the user's terminal.
TID	*INIT-ID contains the string <i>lbnnnnnn</i> , where <i>l</i> is the stack level on which the session is running, <i>b</i> is blank and <i>nnnnnn</i> is the TID number, right justified without leading zeroes. This is the default value (Natural terminal ID).
CPATCH	*INIT-ID contains the same string as with INITID=TID, except that <i>b</i> is the Complete patch character instead of a blank.

### LC - Enable Lower-Case Mode

LC=*value* can be used to switch the terminal between lower-case and upper-case mode.

Value:	Explanation:
ON	Lower-case mode. This is the default value.
OFF	Upper-case mode.

### LE 370 - LE/370 Environment Usage

LE370=*value* specifies the usage of LE/370 as preinitialized environment (CEEPIPI interface) under Complete/SMARTS.

Value:	Explanation:
ON	All 3GL calls are handled in the preinitialized LE/370-enclave.
OFF	This is the default value.

### MSGHDR - Activation of Message Header

MSGHDR=*value* activates or deactivates a message header for Natural error and termination messages using Com-plete's message switching facility for asynchronous Natural transactions.

Value:	Explanation:
ON	The message header is activated. This is the default value.
OFF	The message header is deactivated.

### NTHSIZE - Natural Thread Size

NTHSIZE=*value* specifies the size of the storage area used for Natural's buffers, data areas and thread.

Value:	Explanation:
256 - 2097151	Size in KB. The actual upper limit is determined by the size of the Com-plete thread.
1024	This is the default value.



**Note:** This storage area is allocated within the physical Com-plete thread. The remaining area (Com-plete region size RG for the Natural transaction minus NTHSIZE value) is available for dynamically loading non-Natural subroutines, increasing of variable Natural thread buffers or for Natural work pools, for example.

**SERVER - Name of Natural Server**

SERVER=*value* defines the name of the Natural server which is initialized during Com-plete startup.

Value:	Explanation:
1 - 8 characters	Name of the Natural Server.
NCFNAT82	This is the default value.

**Notes:**

1. The specified server is used to maintain common storage and tables across Natural sessions, for example, local buffer pools. The server must be defined in the Com-plete startup.
2. It is possible to copy the supplied server module NCFNAT82 under a different name and to link and run different Natural Com-plete interfaces with different servers, that is, with different sets of local buffer pools in the same Com-plete.

**SPIEA - Activation of ABEXIT Exits**

SPIEA=*value* activates or deactivates the ABEXIT exits.

Value:	Explanation:
ON	Activates the ABEXIT exit.  This is the default value.
OFF	Deactivates the ABEXIT exit. Should be used for test purposes only.

**THABOVE - Location of Natural Thread**

THABOVE=*value* determines the location of the Natural thread (see [NTHSIZE](#) parameter).

Value:	Explanation:
ON	The Natural thread is allocated in the Com-plete thread extension above the 16 MB line.  This is the default value (use Com-plete thread extension).
OFF	The Natural thread is allocated in the physical Com-plete thread below the 16 MB line

### TTYxxx - TTY Device Control Characters

TTYxxx=value sets teletypewriter (TTY) device control characters. The following hexadecimal values can be set:

Value:	Explanation:
TTYCR=0D	TTY carriage return
TTYLF=15	TTY line feed
TTYIC=00	TTY idle character
TTYNIC=00	TTY number of idle characters
TTYBS=16	TTY backspace
TTYAL=07	TTY alarm



**Note:** There is no default value.

### UCTRAN - Lower-Case to Upper-Case Translation of Com-plete/SMARTS Error Messages

UCTRAN=value controls the lower-case to upper-case translation of the Com-plete/SMARTS error messages.

Value:	Explanation:
ON	Upper-case translation enabled.
OFF	Upper-case translation disabled. This is the default value.

### U2PRINT - Dynamic Printer Allocation

U2PRINT=value controls Com-plete's dynamic printer allocation feature for hardcopy requests.

Value:	Explanation:
ON	Natural calls for hardcopy requests Com-plete's U2PRINT routine to specify a printer destination.
OFF	Disables the dynamic hardcopy printer allocation. Natural uses the default value from Natural profile parameter HCDEST. This is the default value.

## Example of COMP Parameter

---

```
COMP=(LE370=ON,INITID=TIBNAM,NTHSIZE=2000)
```

## Example of NTCOMP Macro

---

```
NTCOMP LE370=ON, *  
        INITID=TIBNAM, *  
        NTHSIZE=2000
```





# 44

## CP - Default Code Page Name

This Natural profile parameter defines the default code page for Natural data and Natural sources.

Possible settings	1 - 64 characters	<p>The name of the desired code page.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>Any character string is possible, but must be predefined by one of the code page parameters <code>CCSID</code>, <code>CCSN</code>, <code>IANA</code> or <code>ALIAS</code> of the macro <code>NTPAGE</code> in the source module <code>NATCONFIG</code>.</li> <li>UTF-32 is not allowed.</li> <li>For information on multi-byte code page support, see <i>Support of Multi-Byte Code Pages</i> in the <i>Unicode and Code Page Support</i> documentation.</li> </ol>									
	ON	<p>Set the default code page for the mainframe as follows:</p> <p>For BS2000/OSD, the code page is EDF03IRV.</p> <p>For z/OS and z/VSE, it depends on the setting of Natural profile parameter <code>ULANG</code>:</p> <table border="1"> <thead> <tr> <th>ULANG Setting:</th> <th>Code Page Used:</th> </tr> </thead> <tbody> <tr> <td>ULANG=1 (English)</td> <td>IBM01140</td> </tr> <tr> <td>ULANG=2 (German)</td> <td>IBM01141</td> </tr> <tr> <td>ULANG=3 (French)</td> <td>IBM01147</td> </tr> <tr> <td>ULANG=4 (Spanish)</td> <td>IBM01145</td> </tr> </tbody> </table> <p>For other languages, IBM01140 is used as default code page.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>The language code related adaptation of the profile parameter <code>CP</code> applies only to the <code>ULANG</code> profile parameter active at session time.</li> <li>Any subsequent language code modification(s) in Natural Security or by terminal command <code>%L=</code> do not influence the initial definition of the default code page.</li> </ol>	ULANG Setting:	Code Page Used:	ULANG=1 (English)	IBM01140	ULANG=2 (German)	IBM01141	ULANG=3 (French)	IBM01147	ULANG=4 (Spanish)
ULANG Setting:	Code Page Used:										
ULANG=1 (English)	IBM01140										
ULANG=2 (German)	IBM01141										
ULANG=3 (French)	IBM01147										
ULANG=4 (Spanish)	IBM01145										

	OFF	Disable code page support.
	' ' (blank)	Same as ON.
	AUTO	The code page name from the user terminal is taken, if available. This applies to the following online environments only: TSO, CICS, Com-plete.  <b>Note:</b>  1. For information on multi-byte code page support, see <i>Support of Multi-Byte Code Pages</i> in the <i>Unicode and Code Page Support</i> documentation. 2. CP=AUTO is not supported in a Natural Single Point of Development environment.
<b>Default setting</b>	OFF	Disable code page support.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Notes:**

1. If no code page is specified for a code page sensitive operation such as data conversions to and from Unicode (for example, by means of a statement specific ENCODED option or by another profile parameter), the default code page applies.
2. For the current Natural session, it is assumed that all code page data, for example, Natural sources, contents of A-format fields, etc., are stored in this code page format.
3. See also *Profile Parameters and Macros* in the *Unicode and Code Page Support* documentation.
4. If the CP profile parameter is set to a value other than OFF, the value of the CFICU profile parameter will change to ON.
5. If the CP profile parameter is set to a value other than OFF, values specified with the profile parameters TAB, UTAB1, UTAB2 and SCTAB during the start of a Natural session are ignored. See also *Translation Tables* in the *Unicode and Code Page Support* documentation.
6. If the profile parameter CP is set to a multi-byte code page (MBCS), the logical shift-in and shift-out characters will be supplied with the code page and therefore SOSI will be ignored.

**Tips:**

- You can find out the default code page that is the result of the evaluation of the CP parameter by viewing the content of the system variable \*CODEPAGE (see system command CPINFO) or by using the *Unicode Properties* function of the SYSCP utility.

# 45

## CPCVERR - Code Page Conversion Error

---

This Natural profile and session parameter specifies whether a conversion error that occurs when converting

- from Unicode to code page or
- from code page to Unicode or
- from one code page to another code page

results in a Natural error or not. Anyway, after the conversion, the target operand will contain the conversion result where all characters which can not be converted will be replaced by a substitution character which is defined by ICU for the affected code page.



### Notes:

1. This parameter is not regarded for the conversion of Natural sources when loading them into the source area or during catalog.
2. On mainframe platforms, it is not regarded whether a Unicode field is converted into the code page before an I/O on a terminal emulation. In this case, the substitution character is replaced by the place holder character which is defined in NATCONFIG.

<b>Possible settings</b>	ON	A Natural error NAT3413 is issued, if at least one code point could not be translated correctly during ICU conversion. For output statements, no error message is issued.
	OFF	No error is generated if one or more code points could not be translated correctly during ICU conversion.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	

<b>Applicable command</b>	GLOBALS	
---------------------------	---------	--

See also:

- in the *Unicode and Code Page Support* documentation.
- *Code Page Support for Editors, System Commands and Utilities on the Mainframe* in the *Unicode and Code Page Support* documentation.
- *Using an Error Transaction Program* in the *Programming Guide*

# 46

## CPOBJIN - Code Page of Batch Input File

---

This Natural profile parameter specifies the code page of the batch input file CMOBJIN (see *Natural in Batch Mode*).

<b>Possible settings</b>	1 -64 characters	The name of the desired code page.  <b>Note:</b> Any character string is possible, but must be predefined by one of the code page parameters CCSID, CCSN, IANA or ALIAS of the macro NTCPAGE in the source module NATCONFIG.
	' ' (blank)	The code page resulting from the evaluation of the profile parameter CP is used.
<b>Default setting</b>	' ' (blank)	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If Natural code page support is disabled (for example, by parameter CP=OFF), any value specified for this parameter is ignored.
2. See also *Profile Parameters and Macros* in the *Unicode and Code Page Support* documentation.



# 47

## CPPRINT - Code Page of Batch Output File

---

This Natural profile parameter specifies the code page of the batch output file `CPPRINT` (see *Natural in Batch Mode*).

<b>Possible settings</b>	1 - 64 characters	The name of the desired code page.  <b>Note:</b> Any character string is possible, but must be predefined by one of the code page parameters <code>CCSID</code> , <code>CCSN</code> , <code>IANA</code> or <code>ALIAS</code> of the macro <code>NTCPAGE</code> in the source module <code>NATCONFIG</code> .
	' ' (blank)	The code page resulting from the evaluation of the profile parameter <code>CP</code> is used.
<b>Default setting</b>	' ' (blank)	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If Natural code page support is disabled (for example, by parameter `CP=OFF`), any value specified for this parameter is ignored.
2. See also *Profile Parameters and Macros* in the *Unicode and Code Page Support* documentation.





# 48

## CPSYNIN - Code Page of Batch Input File for Commands

This Natural profile parameter specifies the code page of the batch input file for commands `CMSYNIN` (see *Natural in Batch Mode*).

<b>Possible settings</b>	1 - 64 characters	The name of the desired code page.  <b>Note:</b>  1. Any character string is possible, but must be predefined by one of the code page parameters <code>CCSID</code> , <code>CCSN</code> , <code>IANA</code> or <code>ALIAS</code> of the macro <code>NTCPAGE</code> in the source module <code>NATCONFIG</code> .  2. UTF-32 is not allowed.
	' ' (blank)	The code page resulting from the evaluation of the profile parameter <code>CP</code> is used.
<b>Default setting</b>	' ' (blank)	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If Natural code page support is disabled (for example, by parameter `CP=OFF`), any value specified for this parameter is ignored.
2. See also *Profile Parameters and Macros* in the *Unicode and Code Page Support* documentation.



# 49

## CSIZE - Size of Con-nect/Con-form Buffer Area

---

This Natural profile parameter determines the size of the Con-nect/Con-form buffer area.

<b>Possible settings</b>	1 - 512	Buffer size in KB.
	0	If CSIZE=0 is specified or if the requested space is not available, Con-nect/Con-form cannot be used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies if Con-nect/Con-form is installed.
2. Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro `NTDS` to specify the buffer size.
3. See the Con-nect/Con-form *Installation* documentation for further information.



# 50 CSTATIC - Statically Linked Modules

---

- CSTATIC Parameter Syntax ..... 148
- NTCSTAT Macro Syntax ..... 149
- Example of Parameter CSTATIC ..... 149
- Examples of NTCSTAT Macro ..... 149

This Natural profile parameter can be used to define a list of module names which are to be linked statically together with the Natural parameter module. It corresponds to the `NTCSTAT` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>CSTATIC Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	no	
<b>Specification within session</b>	no	



#### Notes:

1. Each module specified and linked to the Natural parameter module can be called from a Natural object using a `CALL` statement.
2. As the length of a value of a profile parameter is limited to 256 characters, the number of module names specified with the `CSTATIC` parameter is limited. Alternatively, the macro `NTCSTAT` may be used to define more statically linked modules.
3. Modules which have been statically linked can be replaced during session initialization by loading them dynamically (see the profile parameter `RCA` for details). Modules which are linked neither statically nor loaded dynamically are loaded when they are first invoked by a `CALL` statement.
4. If you want to link modules to an environment-independent nucleus, you have to define them with the `CSTATIC` parameter in two Natural parameter modules: One parameter module has to be linked to the environment-independent nucleus and the other to the environment-dependent nucleus. Note that for all other parameter definitions only the parameter module linked to the environment-dependent nucleus is used.
5. For further information, see *Modules for Static Linking* in the *Installation* documentation.

The following topics are covered below:

## CSTATIC Parameter Syntax

For each module name (1-8 characters) an external reference is generated for the linkage editor.

```
CSTATIC=module-name
```

Or, if the external reference (*entry-name*) is different from the module name, the entry name can be specified, enclosed in brackets, after the module name:

```
CSTATIC=module-name(entry-name)
```

## NTCSTAT Macro Syntax

---

NTCSTAT allows just one module specification per macro call. For each module name (1-8 characters) an external reference is generated for the linkage editor.

```
NTCSTAT module-name
```

Or, if the external reference (*entry-name*) is different from the module name, the entry name can be specified, separated by a comma, after the module name:

```
NTCSTAT module-name,entry-name
```

## Example of Parameter CSTATIC

---

```
CSTATIC=(MOD1,MOD7(ENTRY2),MOD12,MOD27($MAIN))
```

## Examples of NTCSTAT Macro

---

```
NTCSTAT MOD1  
NTCSTAT MOD7,ENTRY2  
NTCSTAT MOD12  
NTCSTAT MOD27,$MAIN
```

---



# 51 CV - Attribute Control Variable

---

This session parameter is used to reference an attribute control variable.

<b>Possible settings</b>	B, C, D, I, N, U, V	Field representation attributes (see session parameter <a href="#">AD</a> ).
	P	Field protection (see session parameter <a href="#">AD</a> ).
	BL, GR, NE, PI, RE, TU, YE	Color (for an explanation of the color codes, see the session parameter <a href="#">CD</a> ).
<b>Default setting</b>	none	
<b>Applicable statements</b>	DISPLAY INPUT PRINT PROCESS PAGE WRITE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. An attribute control variable is defined with Format C (see *Special Formats* in the *Programming Guide*) and is used to assign field attributes dynamically and/or check the “modified” status of a field in conjunction with an INPUT or PROCESS PAGE statement; see also *Logical Condition Criteria, MODIFIED Option - Check whether Field Content has been Modified* in the *Programming Guide*.
2. By specifying the MODIFIED option of the IF statement, the attribute control variable can be used to check whether the contents of a field has been modified during the execution of an INPUT or PROCESS PAGE statement: `IF #ATTR MODIFIED ...`
3. A single attribute control variable can be applied to several input fields by specifying it once at statement level or multiple times at element level, in which case the “modified” status indication is set if any of the fields referencing the control variable has been modified. If the CV parameter is specified both at statement level and at field level and the attribute control variable

for the individual field is empty, the attribute control variable for the statement will be used for the field.

4. The attribute control variable can be expanded up to three dimensions, for example, `CONTR(*)`, `CONTR(*,*)`, `CONTR(*,*,*)`, depending on the rank of the corresponding array.

**Example:**

```
DEFINE DATA LOCAL
1 #ATTR(C)
1 #A (N5)
END-DEFINE
...
MOVE (AD=I CD=RE) TO #ATTR
INPUT #A (CV=#ATTR)
...
```

# 52

## CVMIN - Control Variable Modified at Input

---

This Natural profile parameter determines whether or not an attribute control variable is assigned the status `MODIFIED` when the setting of the field to which the attribute control variable is attached is overwritten by an *identical* setting.

<b>Possible settings</b>	ON	If a field setting is overwritten by the same setting, the corresponding control variable will be assigned the status <code>MODIFIED</code> .
	OFF	If a field setting is overwritten by the same setting, the corresponding control variable will <i>not</i> be assigned the status <code>MODIFIED</code> .
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** If an attribute control variable has been assigned the status `MODIFIED`, the `MODIFIED` option evaluates this as `TRUE`. This applies regardless of whether the input was entered manually, read from the stack or supplied in batch mode.

---

# 53

## DATSIZE - Minimum Size of Buffer for Local Data

---

This Natural profile parameter can be used to set the minimum size of the local data buffer (DATSIZE).

<b>Possible settings</b>	10 - 2097151	Minimum buffer size in KB.
<b>Default setting</b>	32	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Alternatively, you can use the equivalent Natural profile parameter **DS** or macro **NTDS** to specify the size of the buffer.
2. The **DATSIZE** buffer is a “variable size” buffer. If more storage for local data areas is required during the session, the **DATSIZE** buffer is expanded dynamically. In a thread environment, the **DATSIZE** may be temporarily allocated outside the storage thread if it becomes too large. The size of the **DATSIZE** buffer is reduced back to the minimum size when the application does not need the space any longer.

### Function of the DATSIZE Buffer

At execution time, the **DATSIZE** buffer holds the local data used by the Natural main program being executed and the local data of all subordinate objects (except “**FETCHed**” programs) invoked by this program.

When you use Natural in a development environment, the minimum **DATSIZE** required is the default setting (that is, 32 KB). A smaller **DATSIZE** is only possible when using Natural as a runtime-only environment without any Natural utilities being available.

### Calculating the DATSIZE Requirement

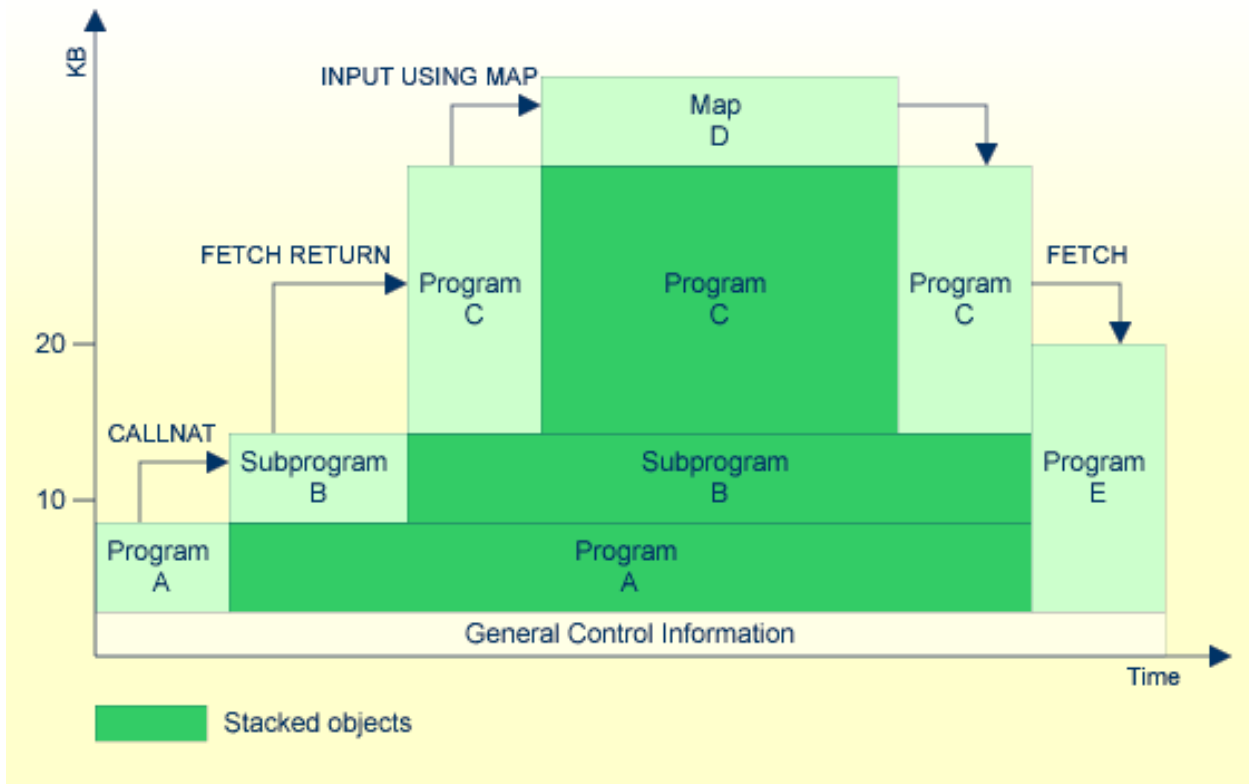
The actual DATSIZE requirement can be calculated as follows (refer to the illustration below):

If another object is invoked by the main program, the local data of this object are also held in the DATSIZE buffer.

If other objects are invoked from the invoked object (with a CALLNAT, PERFORM, FETCH RETURN, INPUT USING MAP statement, a help routine/help map being invoked), their local data are also held in the DATSIZE buffer; the local data of an invoked object is held in the DATSIZE buffer until control is returned from the invoked object to the invoking object.

If another main program is invoked with a FETCH statement, the local data of all previously invoked objects are deleted from the DATSIZE buffer and the local data of the “FETCHed” program are held in the DATSIZE.

In addition, an amount of approximately 128 bytes of general control information for execution are held in the DATSIZE buffer, plus approximately 128 bytes of control information for each object whose local data are being held in the DATSIZE buffer. This is illustrated in the figure below.



# 54 DB - Database Types and Options

---

- DB Parameter Syntax ..... 158
- NTDB Macro Syntax ..... 159
- Possible Database Types ..... 160
- Possible Database Options ..... 161
- Examples of DB Parameter ..... 161
- Examples of NTDB Macro ..... 162

This Natural profile parameter can be used to define database types and options for all and for specific database IDs. It corresponds to the `NTDB` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>DB Parameter Syntax</i> .	
<b>Default setting</b>	ADABAS , *	The default database type is Adabas.
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTDB</code> is used instead.
<b>Specification within session</b>	no	



#### Notes:

1. For information on the Natural database management interface, see the *Database Management System Interfaces* documentation.
2. For the supported versions of the database management systems, refer to *Database Management Systems* in the current *Natural Release Notes for Mainframes*.
3. At compile time, Natural Data Manipulation Language (DML) statement functionality will be limited to the functionality that is available for the specified database type.
4. At runtime, the specified database type defines which Natural database management interface is called for a database ID.

The following topics are covered below:

## DB Parameter Syntax

The DB parameter is specified as follows:

### 1. Default Database Definition

The default database type and its default options is specified as follows. It applies to all database IDs not explicitly specified by the `DB` parameter or `NTDB` macro. If there are no options, the commas and the asterisk can be omitted.

```
DB=(database-type,*,options)
```

### 2. Single Database Definition

A single database ID is specified as follows:



```
DB=(database-type,database-ID,options)
```

### 3. Multiple Database Definition

Multiple database IDs of the same database type with the same options can be specified together, enclosed in parentheses:

```
DB=(database-type,(database-ID1,database-ID2,...),options)
```

Where:

Syntax Element	Value	Explanation
<i>database-type</i>	See <a href="#">Possible Database Types</a> .	Database type. The default value is ADABAS. This subparameter is mandatory for the NTDB macro.
<i>database-ID</i>	0 - 65535	Database identification. Database ID 255 must not be specified, because it is reserved for internal use. You can specify a single database ID, a list of database IDs enclosed in parentheses, or an asterisk (*) to indicate the default for all databases not specified explicitly.
<i>options</i>		See <a href="#">Possible Database Options</a> .

## NTDB Macro Syntax

The NTDB macro is specified as follows:

### 1. Default Database Definition

The default database type and its default options is specified as follows. It applies to all database IDs not explicitly specified by the DB parameter or NTDB macro. If there are no options, the commas and the asterisk can be omitted.

```
NTDB database-type,*,options
```

### 2. Single Database Definition

A single database ID is specified as follows:

```
NTDB database-type, database-ID, options
```

### 3. Multiple Database Definition

Multiple database IDs of the same database type with the same options can be specified together, enclosed in parentheses:

```
NTDB database-type, (database-ID1, database-ID2, ...), options
```

## Possible Database Types

The database types that can be specified with the `DB` parameter or the `NTDB` macro are listed in the following table.

A database type and version for Adabas indicates the functional level of database features that are to be used by Natural.

All database types except Adabas require that the appropriate database handler module is installed. For more information, see the appropriate documentation about the database handler required in your environment.

Database Type	Adabas Features or Database Handler to be Used
ADABAS	Adabas Version 8.2 features
or	ADABAS is the default value.
ADAV82	
ADAV7	Adabas Version 7 features
ADAV8	Adabas Version 8 features
VSAM	Natural for VSAM
DLI	Natural for DL/I
DB2	Natural for DB2
or	
SQL	
CXX	Natural SQL Gateway
PROCESS	Entire System Server
TRS	Adabas Text Retrieval
INCORE	Natural ISPF

## Possible Database Options

The following options can be specified with the `DB` parameter or the `NTDB` macro:

Option	Explanation
ACODE	The Natural application must communicate to Adabas whether code page or Unicode support is desired if the Adabas DBID used is enabled for character encoding and data conversion. Therefore, the <code>ACODE</code> setting specifying the application-specific code page for all <code>A</code> fields and/or the <code>WCODE=4095</code> (UTF-16) setting for all <code>W</code> fields must be sent with the <code>OP</code> call. See also <i>Unicode and Code Page Support</i> .
WCODE	
ENTIRE	The database is to be handled by Entire DB.
ETP	The database is to be handled by Entire Transaction Propagator.
OPEN	This option applies to Adabas databases only, for which Adabas requires an open request to be issued. If <code>OPEN</code> is specified for such a database, an open request is always issued (even if the <code>ETID</code> is blank).
READ	The database is to be read-only.

The following options can be specified with the dynamic parameter `DB` only.

Option	Explanation
NOENTIRE	Resets the <code>ENTIRE</code> option.
NOETP	Resets the <code>ETP</code> option.
NOOPEN	Resets the <code>OPEN</code> option.
NOREAD	Resets the <code>READ</code> option.
OFF	Removes any <code>DB</code> or <code>NTDB</code> definition for the specified databases, see <a href="#">Examples of DB Parameter</a> below.

## Examples of DB Parameter

- `DB=(VSAM,(22,26,33))` This defines Databases 22, 26 and 33 as VSAM databases.
- `DB=(*,READ)` This sets all databases for which the default database definition applies to read-only.
- `DB=(,(8,9),NOREAD)` This removes the read-only option for Databases 8 and 9.
- `DB=(,17,OFF)` This resets the database definition of Database 17 to defaults.

## Examples of NTDB Macro

---

NTDB DLI,7

This defines Database 7 as DL/I database.

NTDB ADAV8,(10,15,57),ETP

In the Natural parameter module, this defines Databases 10, 15 and 57 as Adabas databases which are to be handled by Entire Transaction Propagator.

# 55

## DB2 - Parameters for SQL Database Management

### Interfaces

---

▪ DB2 Parameter Syntax .....	164
▪ NTDB2 Macro Syntax .....	164
▪ Keyword Subparameters .....	165
▪ Example of DB2 Parameter .....	178
▪ Example of NTDB2 Macro .....	178

This Natural profile parameter is used to specify the parameters for the database management interfaces Natural for DB2, Natural for SQL/DS and Natural SQL Gateway. It corresponds to the [NTDB2](#) macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">DB2 Parameter Syntax</a> .	
<b>Default setting</b>	See <a href="#">Keyword Subparameters</a> .	
<b>Dynamic specification</b>	yes	The parameter DB2 can only be specified dynamically. In the Natural parameter module, use the macro <a href="#">NTDB2</a> .
<b>Specification within session</b>	no	

The following topics are covered:

## DB2 Parameter Syntax

---

The DB2 parameter is specified as follows:

```
DB2=(keyword-subparameter=value,keyword-subparameter=value,...)
```

See [Keyword Subparameters](#).

## NTDB2 Macro Syntax

---

The NTDB2 macro is specified as follows:

```

NTDB2 BTIGN=value, *
      CONVERS=value, *
      CONVR2=value, *
      DB2COLL=value, *
      DB2GROV=value, *
      DB2PLAN=value, *
      DB2SSID=value, *
      DB2XID=value, *
      DDFSERV=value, *
      DELIMID=value, *
      EBPFSRV=value, *
      EBPMAX=value, *
      EBPPRAL=value, *
      EBPSEC=value, *
      ETIGN=value, *
      FSERV=value, *
      MAXLOOP=value, *
      MAXSTMT=value, *
      NNPSF=value, *

```

NNPSF= <i>value</i> ,	*
NSBDATE= <i>value</i> ,	*
NSBPORT= <i>value</i> ,	*
PSCIGN= <i>value</i> ,	*
REFRESH= <i>value</i> ,	*
RETRYPO= <i>value</i> ,	*
RWRDONL= <i>value</i> ,	*
STATDYN= <i>value</i>	

See [Keyword Subparameters](#).

## Keyword Subparameters

There are two groups of keyword subparameters:

### General Keyword Subparameters

BTIGN | CONVERS | CONVRS2 | DDFSERV | DELIMID | EBPFSRV | EBPPRAL | EBPSEC | EBPMAX | ETIGN | FSERV | MAXLOOP | MAXSTMT | NNPSF | NSBDATE | NSBHOST | NSBPORT | PSCIGN | REFRESH | RETRYPO | RWRDONL | STATDYN

### Special Keyword Subparameters

DB2COLL | DB2GROV | DB2PLAN | DB2SSID | DB2XID



#### Notes:

1. These special keyword subparameters belong together. They apply only to DB2 for z/OS in environments using CAF or RRSAF.
2. They provide DB2 connecting and resource functionality, which in earlier versions was only supplied by the NATPLAN program. These parameters apply only to DB2 for z/OS and to environments where either the DB2 Call Attachment Facility (CAF) or the DB2 Resource Recovery Services Attachment Facility (RRSAF) is used. An exception to this is the Natural for DB2 stored procedure environment, where DB2 already provides the DB2 resources based on the stored procedure creation parameter COLLID. Therefore, the keyword subparameters mentioned here are not used in a Natural for DB2 stored procedure environment. Before the very first DB2 SQL access is performed by Natural for DB2 in a CAF or RRSAF environment, Natural connects to the desired DB2 subsystem (DB2SSID), and the desired plan (DB2PLAN) is allocated.
3. If the application already connected to DB2 by NATPLAN before the first SQL request, the NTDB2 or DB2 parameters are ignored and the connection already established is used.

**BTIGN - Ignore BACKOUT TRANSACTION Error**

BTIGN=*value* enables you to ignore the error which results from a BACKOUT TRANSACTION statement that was issued too late for backing out the current transaction, because an implicit Syncpoint has previously been issued by the TP monitor.

Value	Explanation
ON	The error after a late BACKOUT TRANSACTION is ignored. This is the default value.
OFF	The error after a late BACKOUT TRANSACTION is <i>not</i> ignored.

**Notes:**

1. This parameter is relevant in CICS and IMS TM environments only.
2. This subparameter is ignored by Natural SQL Gateway.

**CONVERS - Conversational Mode under CICS**

CONVERS=*value* is used to allow conversational mode in CICS environments where no Natural file server is used.

Value	Explanation
ON	Conversational mode is allowed. This is the default value.
OFF	Conversational mode is <i>not</i> allowed.

**Notes:**

1. If this subparameter is set to OFF and no Natural file server is used, you cannot continue database loops across terminal I/Os; if so, the following codes may occur.
2. With Natural for DB/2 and Natural for SQL/DS, DB2 SQLCODE -501, 504, 507, 514 or 518 apply.
3. With Natural SQL Gateway, Connex SQLCODE -4011 applies.
4. If, in a CICS environment, you are using the function *SQL Services (NDB/NSQ)* or *SQL Services (NSB)* (described in the *Database Management System Interfaces* documentation) without Natural for DB2 file server, you must specify CONVERS=ON, otherwise the error mentioned above can occur.



## CONVRS2 - Conversational Mode 2 under CICS

CONVRS2=*value* allows/disallows the conversational mode 2 in CICS environments.

Value	Explanation
ON	Conversational mode 2 is allowed.
OFF	Conversational mode 2 is <i>not</i> allowed.  This is the default value.



### Notes:

1. This subparameter is used to control conversational mode 2 in CICS environments. Conversational mode 2 means that update transactions are spawned across terminal I/Os until either an explicit COMMIT or explicit ROLLBACK has been issued (Caution: DB2 and CICS resources are kept across terminal I/Os!). This means CONVRS2=ON has the same effect as the Natural profile parameter PSEUDO=OFF, except that the conversational mode is entered after a DB2 update statement (UPDATE, DELETE, INSERT) and left again after a COMMIT or ROLLBACK, while PSEUDO=OFF causes conversational mode for the total Natural session.
2. See also CALLNAT subprogram NDBCONV (described in the *Database Management System Interfaces* documentation), which allows setting or resetting conversational mode 2 dynamically.

## DB2COLL – DB2 Collection Name

DB2COLL=*value* specifies the collection name of DB2 packages used by the application in an environment where the RRSAF interface is used.

Value	Explanation
<i>value</i>	Any valid 18 character DB2 collection name.
' ' (blank)	No name is specified.  This is the default value.



### Notes:

1. This subparameter is only honored by Natural for z/OS.
2. This parameter is only honored by the RRSAF interface if the DB2PLAN character contains as first character a question mark.
3. See also [Special Keyword Subparameters](#).

## DB2GROV – DB2 Group Override

DB2GROV=*value* specifies whether the connection to the DB2 system identified by DB2SSID is to be made to the single DB2 subsystem or to the DB2 sharing group, in case there exists a DB2 sharing group and a single DB2 with the identical DB2SSID.

Value	Explanation
' ' (blank)	Connection will be made to the DB2 sharing group identified by DB2SSID. This is the default value.
NOGROUP	Connection will be made to the DB2 subsystem identified by DB2SSID.



### Notes:

1. This subparameter is only honored by Natural for z/OS.
2. See also [Special Keyword Subparameters](#).

## DB2PLAN – DB2 Plan Name

DB2PLAN=*value* specifies the plan name used by the application.

Value	Explanation
<i>value</i>	Any valid 8 character DB2 plan name. If the first character is a question mark (?) and the RRSAF interface is used by the application, the packages identified by the collection name specified with the subparameter DB2COLL will be used by the application.
' ' (blank)	No name is specified. This is the default value.



### Notes:

1. This subparameter is only honored by Natural for z/OS.
2. See also [Special Keyword Subparameters](#).

**DB2SSID – DB2 Subsystem Identifier**

DB2SSID=*value* specifies the name of the DB2 sharing group or the name of the DB2 subsystem to be connected to.

Value	Explanation
<i>value</i>	Any valid 4 character DB2 sharing group or DB2 subsystem name.
' ' (blank)	No name is specified. This is the default value.

**Notes:**

1. This subparameter is only honored by Natural for z/OS.
2. See also [Special Keyword Subparameters](#).

**DB2XID – DB2 Global Transaction ID**

DB2XID=*value* specifies whether the RRSF interface should use a global transaction ID or not.

Value	Explanation
ON	RRSAF will create a global transaction ID. This is the default value.
OFF	RRSAF will not create a global transaction ID.

**Notes:**

1. This subparameter is only honored by Natural for z/OS.
2. See also [Special Keyword Subparameters](#).

**DDFSERV - Alternate DD Name for Natural File Server**

DDFSERV=*value* specifies a DD name for the Natural file server module.

Value	Explanation
<i>ddname</i>	Any valid 8-character DD name.
CMFSERV	This is the default name.



**Note:** This subparameter is ignored by Natural for SQL/DS.

## DELIMID - Escape Character for Delimited Identifiers

`DELIMID=value` specifies the escape character to be used for generating delimited SQL identifiers for the column names and table names in SQL statements.

Value	Explanation
DQ	Double quotation mark (")
SQ	Single quotation mark (')
OFF	Delimited identifiers are not enabled. This is the default value.



### Notes:

1. A delimited identifier is a sequence of one or more characters enclosed in escape characters. You must specify a delimited identifier if you use SQL-reserved words for column names and table names, as demonstrated in [Example of DELIMID](#).
2. To enable generation of delimited identifiers, `DELIMID` must be set to double quotation mark (") or single quotation mark (').
3. The escape character specified for `DELIMID` and the `SQL STRING DELIMITER` are mutually exclusive. This implies that the mark (double or single quotation) used to enclose alphanumeric strings in SQL statements must be different from the value specified for `DELIMID`.
4. If you enable delimited identifiers, ensure that the value specified for `DELIMID` also complies with the SQL string delimiter value of your DB2 installation.
5. See also the [RWRDONL](#) subparameter to determine which delimited identifiers are generated in the SQL string.

### Example of DELIMID

In the following example, a double quotation mark (") has been specified as the escape character for the delimited identifier:

Natural statement:

```
SELECT FUNCTION INTO #FUNCTION FROM XYZ-T1000
```

Generated SQL string:

```
SELECT "FUNCTION" FROM XYZ.T1000
```

### EBPFSRV - Editor Buffer Pool for Natural File Server

EBPFSRV=*value* specifies whether the Natural file server uses the Software AG Editor buffer pool as the storage medium.

Value	Explanation
ON	The Software AG buffer pool is to be used as the storage medium for the Natural file server.  ON <i>must</i> be set if the file server is to be used in a Parallel Sysplex environment. In this case, your Natural session must use the auxiliary editor buffer pool (see also <i>Support of a z/OS Parallel Sysplex Environment in Installing Software AG Editor</i> ).
OFF	A VSAM file is to be used as the storage medium for the Natural file server.  This is the default value.



**Note:** This subparameter is ignored by Natural for SQL/DS.

### EBPMAX - Editor Buffer Pool Maximum Allocation

EBPMAX=*value* specifies the maximum number of blocks to be allocated to each user of the Natural file server if the Software AG Editor buffer pool is used as the storage medium.

Value	Explanation
0 - 32676	Maximum number of blocks to be allocated.
100	This is the default value.



**Notes:**

1. This subparameter defines the upper limit for the allocation of buffer pool blocks to a single user.
2. If the **EBPFSRV** subparameter is set to OFF, EBPMAX is not used at runtime.
3. This subparameter is ignored by Natural for SQL/DS.

**EBPPRAL - Editor Buffer Pool Primary Allocation**

EBPPRAL=*value* specifies the number of blocks to be allocated primarily to each user of the Natural file server if the Software AG Editor buffer pool is used as the storage medium.

Value	Explanation
0 - 32676	Number of blocks to be allocated primarily.
20	This is the default value.

**Notes:**

1. If the **EBPFSRV** subparameter is set to OFF, EBPPRAL is not used at runtime.
2. This subparameter is ignored by Natural for SQL/DS.

**EBPSEC - Editor Buffer Pool Secondary Allocation**

EBPSEC=*value* specifies the number of blocks to be allocated secondarily to each user of the Natural file server if the Software AG Editor buffer pool is used as the storage medium.

Value	Explanation
0 - 32676	Number of blocks to be allocated secondarily.
10	This is the default value.

**Notes:**

1. The secondary allocation is used to allocate buffer pool blocks to the user if the primary allocation amount is already exhausted.
2. If the **EBPFSRV** subparameter is set to OFF, EBPSEC is not used at runtime.
3. This subparameter is ignored by Natural for SQL/DS.

**ETIGN - Ignore END TRANSACTION Error**

ETIGN=*value* is used to handle END TRANSACTION statements in a message-driven IMS region (MPP or message-oriented BMP).

Value	Explanation
ON	The END TRANSACTION error is ignored and processing is continued.  This is the default value.
OFF	The END TRANSACTION error is <i>not</i> ignored.

**Notes:**

1. This subparameter is relevant in IMS MPP and message-oriented BMP environments only.
2. In such a region, an `END TRANSACTION` cannot be executed by the Natural IMS TM Interface and is therefore ignored without any notification. In such situations, the `ETIGN` subparameter can be used to issue an error message instead.
3. This subparameter is ignored by Natural for SQL/DS and Natural SQL Gateway.

### FSERV - Activate Natural File Server

`FSERV=value` specifies whether the Natural file server is to be used and whether it can be disabled in the case of an initialization error.

Value	Explanation
ON	Natural file server is to be used.
OFF	Natural file server is not to be used. This is the default value.
DIS	Natural file server is to be used but is to be disabled if it cannot be initialized.



#### Notes:

1. If `FSERV` is set to `ON` and the Natural file server is not operational, the initialization of Natural for DB2 is terminated with a corresponding Natural error message. The Natural interface to DB2 is disabled, and any SQL call is rejected with a corresponding error message.
2. This subparameter is ignored by Natural for SQL/DS.

### MAXLOOP - Maximum Number of Nested Program Loops

`MAXLOOP=value` specifies the maximum possible number of nested SQL database access statements.

Value	Explanation
1 - 99	Maximum possible number of nested database access loops.
10	This is the default value.

**MAXSTMT - Maximum Number of Allocated Dynamic SQL Statements**

MAXSTMT=*value* specifies the maximum possible number of allocated dynamic SQL statements for the Natural SQL Gateway.

Value	Explanation
1 - 99	Maximum possible number of allocated dynamic SQL statements.
10	This is the default value.



**Note:** This subparameter is ignored by Natural for DB2 and Natural for SQL/DS.

**NNPSF - Set Natural Numerics' Positive Sign to F**

NNPSF=*value* is used to change the sign character of positive Natural variables which have format N, if they are filled from the SQL database system. Usually, these variables have the C as the positive sign character. If the subparameter NNPSF is set to ON, F is used as the positive sign character.

Value	Explanation
ON	Positive numbers put into Natural numeric variables by the SQL database system get the sign F.
OFF	Positive numbers put into Natural numeric variables by the SQL database system remain unchanged. This is the default value.



**Note:** This subparameter is ignored by Natural for SQL/DS.

**NSBDATE - Set Natural SQL Gateway Date String Format**

NSBDATE=*value* specifies the format in which the Natural SQL Gateway server returns SQL date strings to the application. The application returns an SQL date as a string in the ISO format (YYYY-MM-DD) by default. NSBDATE=E enables the application to return SQL date strings in the EUR format (DD.MM.YYYY).

Value	Explanation
' '	Natural SQL Gateway returns SQL date strings in the ISO format (YYYY-MM-DD). This is the default value.
E	Natural SQL Gateway returns SQL date strings in the EUR format (DD.MM.YYYY).



**Note:** This subparameter is ignored by Natural for DB2 and Natural for SQL/DS.



**NSBHOST - Set Natural SQL Gateway Server Host Name**

NSBHOST=*value* specifies the Natural SQL Gateway server TCP/IP host name used to communicate from TP-monitor environments such as CICS or Com-plete to CONNX JDBC in order to access SQL databases.

Value	Explanation
<i>hostname</i>	This host name designates the TCP/IP address of the Natural SQL Gateway server that communicates with the CONNX JDBC server.
LOCALHOST	This is the default value, meaning the Natural SQL Gateway server resides on the local host.

**Notes:**

1. If the host name specification contains dots (.), the host name should be surrounded with single quotes.
2. This subparameter is ignored by Natural for DB2 and Natural for SQL/DS.

**Example:**

```
NSBHOST='IBM2.HQ.SAG'
```

**NSBPORT – Set Natural SQL Gateway Server TCP/IP Port Number**

NSBPORT=*value* specifies the TCP/IP port number to which the Natural SQL Gateway server listens.

Value	Explanation
<i>integer</i>	Specifies the port number to which the Natural SQL Gateway server listens.
0	This is the default value, meaning no Natural SQL Gateway server port number is specified.



**Note:** This subparameter is ignored by Natural for DB2 and Natural for SQL/DS.

**Example:**

```
NSBPORT=4713
```

## PSCIGN - Treat Positive SQLCODEs as SQLCODE 0

PSCIGN=*value* influences the treatment of positive SQLCODEs returned from the SQL database system.

Value	Explanation
ON	Positive SQLCODEs are treated as zero.
OFF	Positive SQLCODEs cause a NAT3700 error message. This is the default value.



### Notes:

1. If the subparameter PSCIGN is set to OFF, a NAT3700 error message is issued.
2. If the subparameter PSCIGN is set to ON, positive SQLCODEs are treated as if they were zero; that is, no NAT3700 error message is issued.

## REFRESH - Refresh Setting of DB2 Server and Package Set

REFRESH=*value* is used to automatically set the DB2 server and package set to the values that applied when the last transaction was executed.

Value	Explanation
ON	An automatic refresh is performed every time before a database transaction starts and if a server or package set has been specified.
OFF	No automatic refresh is performed. This is the default value.



### Notes:

1. Server and package set are refreshed by using the `CONNECT TO server-name and SET CURRENT PACKAGESET = 'package-name'` SQL statements of DB2.
2. This subparameter is ignored by Natural SQL Gateway.

**RETRYPO - Number of Positioning Retries**

RETRYPO=*value* delimits the number of retries done by Natural for DB2 in order to reposition a dynamic scrollable cursor in a pseudo-conversational environment (IMS MPP or CICS).

Value	Explanation
1 - 2147483648	Number of retries done by Natural for DB2.
0	No retries are done if RETRYPO is set to 0.
10	This is the default value.

**Notes:**

1. This subparameter is ignored by Natural SQL Gateway and Natural for SQL/DS.
2. This subparameter applies only to dynamic scrollable cursors.
3. In pseudo-conversational environments, cursors are closed at terminal I/O. For dynamic scrollable cursors the current absolute position number and the current key column values are saved. After terminal I/O, the dynamic scrollable cursor is opened again and positioned absolutely to the position of the saved absolute position. The contents of the key columns are compared with the saved values. If they match, processing continues with the next database operation requested.
4. If the contents of the key columns do not match the saved values, the next rows are fetched and compared with the saved values until either the values match or no row is found or the RETRYPO count is exhausted. In the latter cases, the cursor is repositioned to the saved position and the prior rows are fetched and compared until either the values match or no row is found or the RETRYPO count is exhausted. In the latter cases, a NAT3703 error message is issued. If a row is fetched whose key columns match the saved values, processing continues with the next database instruction.
5. RETRYPO delimits the retries in each direction (*next* or *prior*).

**RWRDONL - Generate Delimited Identifiers for Reserved Words Only**

RWRDONL=*value* determines which identifiers are generated as delimited identifier in an SQL string.

Value	Explanation
ON	Only identifiers that are reserved words are generated as delimited identifiers. The list of reserved words is contained in the NDBPARM module. This list was merged from the lists of reserved words for DB2 for z/OS, DB2 for VSE & VM, DB2 for LINUX, OS/2, Windows and UNIX, and ISO/ANSI SQL99.  This is the default value.
OFF	All identifiers are generated as delimited identifiers.



**Note:** RWRDONL only takes effect if the setting of the DELIMID subparameter allows delimited identifiers.

### STATDYN - Allow Static to Dynamic Switch

STATDYN=*value* is used to allow dynamic execution of statically generated SQL statements if the static execution returns an error.

Value	Explanation
NEVER	Dynamic execution is never allowed.  This is the default value.
ALWAYS	Dynamic execution is always allowed after an error.
SPECIAL	Dynamic execution is allowed after special errors only.  These special errors are: <ul style="list-style-type: none"> <li>■ NAT3706: Load module not found</li> <li>■ SQL -805: DBRM (database request module) does not exist in plan</li> <li>■ SQL -818: Mismatch of time stamps</li> </ul>



**Note:** This subparameter is ignored by Natural SQL Gateway.

### Example of DB2 Parameter

---

```
DB2=(FSERV=DIS,DELIMID=DQ,RWRDONL=ON,STATDYN=ALWAYS)
```

### Example of NTDB2 Macro

---

```
NTDB2 FSERV=ON, *
      DELIMID=DQ, *
      NSBHOST=LOCALHOST, *
      NSBPORT=4851, *
      RWRDONL=ON
```

# 56

## DB2SIZE - Natural Buffer Area for DB2 or SQL/DS

This Natural profile parameter sets the maximum size of the buffer area required by some Natural DBMS interface products.

<b>Possible settings</b>	0 - 64	Maximum size of the buffer area in KB.  <b>Note:</b>  1. If the requested space is not available, the DBMS interface cannot be used. 2. Set DB2SIZE to 0 if Natural is <i>not</i> to be used for DB2 or SQL/DS. 3. If Natural is to be used for DB2 or SQL/DS, DB2SIZE must be set to at least 40 KB.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter applies to Natural for DB2, Natural for SQL/DS and Natural SQL Gateway.
2. See also the following sections in the *Installation* documentation:
3. *Natural Parameter Modifications for Natural for DB2*
4. *Natural Parameter Modifications for the Natural SQL Gateway*
5. *Natural Parameter Modifications for Natural for SQL/DS*

---

# 57

## DBCLOSE - Database Close at Session End

---

This Natural profile parameter determines whether or not Natural closes all databases that it has accessed during a session at the end of this session.

<b>Possible settings</b>	ON	Natural closes all databases.
	OFF	Natural closes only those databases which had been opened by an explicit open command.  An explicit open command will be issued in the following cases: <ul style="list-style-type: none"><li>■ profile parameter <code>ETID</code> is not set to ' ' (blank),</li><li>■ profile parameter <code>DBOPEN=ON</code>,</li><li>■ the open is forced by the <code>OPEN</code> option of macro <code>NTDB</code> or profile parameter <code>DB</code>.</li></ul>
	ETDB	Natural closes only the database specified with the profile parameter <code>ETDB</code> .
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

Other transaction processing related parameters: `ADAMODE` | `DBOPEN` | `ENDBT` | `ET` | `ETDB` | `ETEOP` | `ETIO` | `ETSYNC`





# 58

## DBGAT - Debug Attach Server for NaturalONE

---

▪ DBGAT Parameter Syntax .....	184
▪ NTDBGAT Macro Syntax .....	184
▪ Example of DBGAT Parameter .....	185
▪ Example of NTDBGAT Macro .....	185

This Natural profile parameter allows debugging of an external Natural application from a z/OS or z/VSE host with NaturalONE. DBGAT corresponds to the [NTDBGAT](#) macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">DBGAT Parameter Syntax</a> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

For detailed information on how to debug external Natural applications, see the *NaturalONE* documentation.

This section covers the following topics:

## DBGAT Parameter Syntax

---

The `DBGAT` parameter is specified as follows:

```
DBGAT=(keyword-subparameter=value,...)
```

Where:

Keyword Subparameter	Value	Explanation
ACTIVE	ON	ON means that the debug attach mechanism is active. The Natural runtime is ready for debugging.
	OFF	
HOST	1 - 64 characters	Name of the debug attach server that is to be connected.
PORT	0 - 65535	Number of the port to which the debug attach server listens.
CLID	1 - 64 characters	Client ID of the NaturalONE project that is to be debugged.

## NTDBGAT Macro Syntax

---

The `NTDBGAT` macro is specified as follows:

```
NTDBGAT ACTIVE=value, *  
        HOST=value, *  
        PORT=value, *  
        CLID=value
```

## Example of DBGAT Parameter

---

```
DBGAT=(ACTIVE=ON,HOST=MYHOST,PORT=9999,CLID=MYCLIENTID)
```

## Example of NTDBGAT Macro

---

```
NTDBGAT ACTIVE=ON, *  
        HOST=MYHOST, *  
        PORT=50882
```



# 59

## DBGERR - Automatic Start of Debugger at Runtime Error

---

This Natural profile parameter enables the Natural Debugger to be started automatically if a Natural error occurs at runtime.

<b>Possible settings</b>	ON	The Debugger is started automatically and produces a screen which enables you to get further information on the existing error.  <b>Note:</b>  1. The runtime environment will cede control to the Debugger in the event of a Natural error, independent of whether the Debugger is already on or not.  2. For further information, see <i>Start the Debugger</i> in the <i>Natural Debugger</i> documentation.
	OFF	The Debugger is <i>not</i> started automatically.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

---

# 60

## DBID - Default Database ID for Natural System Files

---

This Natural profile parameter identifies the default database in which the Natural system files (FNAT, FUSER, FDIC, FSEC, FSPPOOL, FPROF, FREG) are located.

<b>Possible settings</b>	0 - 254 256 - 65535	The default database ID for Natural system files. <b>Note:</b> Database ID 255 is reserved for internal use.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the DBID parameter dynamically, the database ID for all system files is set to this setting. Therefore, you must specify the DBID parameter <i>before</i> any individual system file specific profile parameter (FNAT, FUSER, FDIC, FSEC, FSPPOOL, FPROF, FREG) if you want to specify any of these parameters, too.
<b>Specification within session</b>	no	



### Notes:

1. The database ID specified with the DBID parameter applies to all Natural system files for which no individual database IDs are specified.
2. Database IDs for individual system files can be specified with the subparameter *database-ID* of the profile parameters FNAT, FUSER, FDIC, FSEC, FSPPOOL, FPROF and FREG.
3. The type of database system is determined by the specification in the NTDB macro.

---



# 61 DBOPEN - Database Open without ETID

---

This Natural profile parameter controls the database open handling of Natural.



**Note:** DBOPEN overrules the setting `ETID=' '` (blanks).

<b>Possible settings</b>	ON	A database open will be issued even if the ETID parameter is set to blanks.
	OFF	No database open will be issued if the ETID parameter is set to blanks. <b>Exception:</b> One open command will always be sent to the database specified as <code>ETDB</code> , even if ETID is set to blanks and DBOPEN is set to OFF.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

Other transaction processing related parameters: [ADAMODE](#) | [DBCLOSE](#) | [ENDBT](#) | [ET](#) | [ETDB](#) | [ETEOP](#) | [ETIO](#) | [ETSYNC](#)



# 62

## DBROLL - Database Calls before Session Suspension

---

This Natural profile parameter determines the number of database calls after which a Natural session is suspended, that is, a potential roll-out of the Natural thread is to be performed.

<b>Possible settings</b>	0 - 32767	Number of database calls.
<b>Default setting</b>	0	No session suspension for database calls.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies under CICS and Com-plete.
2. When the non-zero DBROLL count is reached, Natural issues a conditional CMROLL request. (see [Note Concerning CMROLL](#) in the description of profile parameter MAXROLL); that is, when other sessions are waiting for a thread, the session is suspended, which may result in a roll-out of the Natural thread.
3. In CICS, if no other session is waiting, just an EXEC CICS SUSPEND is executed to relinquish control to other tasks of higher or equal dispatching priority.



# 63

## DBUPD - Database Updating

---

This Natural profile parameter indicates whether database updating is to be permitted during the Natural session.

<b>Possible settings</b>	ON	Database update is permitted.
	OFF	Database update is not permitted. A Natural statement which would cause a database update (STORE, UPDATE, DELETE) is not executed and an error message is generated.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	* Recommended.
	USR1042N *	



# 64

## DC - Character for Decimal Point Notation

This Natural profile and session parameter determines the character to be used as decimal separator, that is, a point or a comma.

<b>Possible settings</b>	any character (except numeric characters)	<p>You specify the DC parameter as DC=' c ' where c represents the character to be used as decimal separator. The character specified with the DC parameter</p> <ul style="list-style-type: none"> <li>■ must not be the same as the one specified with the IA profile/session parameter (input assign character) or ID profile/session parameter (input delimiter character),</li> <li>■ should not be the same as the one specified with the CF profile/session parameter (control character for terminal commands) or HI profile parameter (help character).</li> </ul>		
<b>Default setting</b>	. (period)			
<b>Dynamic specification</b>	yes			
<b>Specification within session</b>	yes	Applicable statements:	SET GLOBALS	Parameter is evaluated at runtime.
		Applicable command:	GLOBALS	Parameter may be specified dynamically with the GLOBALS system command.
<b>Application programming interface</b>	USR0350N, USR1005N *	<p>See SYSEXT - <i>Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.</p> <p>* Recommended.</p>		



### Notes:

1. Within a Natural session, the profile parameter DC can be overridden by the session parameter DC.

2. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the *Library Profile*.



# 65 DD - Day Differential

---

This Natural profile parameter is used to adjust the current machine date (as read by using the internal machine time) by adding/subtracting any number of days to/from it. This makes it possible to re-run an application that was to be run at a certain date but for some reason could not be run at that date.

The DD profile parameter is specified as follows:

DD=+nn

or

DD=-nn

where *nn* is the number of days.

<b>Possible settings</b>	-32767 to +32767	Machine date is adjusted. Specification of the plus sign (+) is optional.
	0	No adjustment is made.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.

See also the profile parameters [TD](#) and [YD](#).



# 66

## DELETE - Deletion of Dynamically Loaded Programs

This Natural profile parameter determines whether dynamically loaded non-Natural programs are to be deleted on the completion of the Natural program in which they are loaded.

You can use the profile parameter `CDYNAM` to limit the number of non-Natural programs that can be loaded simultaneously.

<b>Possible settings</b>	ON	Dynamically loaded non-Natural programs are deleted at the end of the Natural program in which they were loaded.
	OFF	Dynamically loaded non-Natural programs are not deleted at the end of the Natural program in which they were loaded; they are kept until the current Level 1 program terminates.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.

The following platform-specific requirements apply:

<b>Platform:</b>	<b>Comment:</b>
Under CICS	In a CICS environment, this parameter applies only if the non-Natural program is invoked via standard linkage conventions ( <code>SET CONTROL 'P=S'</code> ).
Under z/OS Batch, TSO, z/VSE Batch and IMS TM	This parameter does not apply in an IBM Language Environment (LE). All dynamic programs loaded during a Natural session are deleted upon LE environment termination, that is, during the termination of the Natural session. For more information about Natural in an LE environment, see <i>Support of IBM LE Subprograms</i> in the <i>Operations</i> documentation.



# 67 DF - Date Format

With the DF session parameter, you determine the length of a date when converted into alphanumeric representation without an edit mask being specified.

<b>Possible settings</b>	S	8-byte representation with 2-digit year component and delimiters ( <i>yy-mm-dd</i> ).  With DF=S, only 2 digits are provided for the year information; this means that if the date value contained the century, this information would be lost during the conversion.
	I	8-byte representation with 4-digit year component and no delimiters ( <i>yyyymmdd</i> ). See <a href="#">Note</a> .
	L	10-byte representation with 4-digit year component and delimiters ( <i>yyyy-mm-dd</i> ). See <a href="#">Note</a> .
<b>Default setting</b>	S	
<b>Applicable statements</b>	FORMAT	
	INPUT DISPLAY WRITE PRINT	Parameter may be specified at statement level and/or at element level.
	MOVE COMPRESS STACK RUN FETCH	Parameter may be specified at element level.
<b>Applicable command</b>	none	



## Notes:

1. The DF parameter is evaluated at compilation time.

2. The sequence of the day, month and year components and the delimiter characters used are determined by the profile parameter `DTFORM`.
3. When the value of a date field is converted into alphanumeric format (for example, in a `MOVE`, `DISPLAY`, `WRITE` or `INPUT` statement) and no edit mask is specified for the conversion, the default date format as determined by the profile parameter `DTFORM` is used as edit mask.
4. The same is true for the input validation of a date variable used in an `INPUT` statement: If no edit mask is specified, the input is validated according to the date format determined by the `DTFORM` parameter.
5. By using `DF=I` or `DF=L`, you can gradually change your applications to use 4-digit year representations and at the same time continue to make use of the flexibility provided by the profile parameter `DTFORM`.
6. See also *Date Format for Alphanumeric Representation - DF Parameter* in the *Programming Guide*.

# 68

## DFOUT - Date Format for Output

This Natural profile and session parameter determines the format in which the settings of date variables are displayed by INPUT, DISPLAY, PRINT and WRITE statements.

<b>Possible settings</b>	S	Date variables are displayed with a 2-digit year component, and delimiters as determined by the profile parameter <a href="#">DTFORM</a> .	
		Example: <i>yy-mm-dd</i>	
	I	Date variables are displayed with a full 4-digit year component and no delimiters.	
		Example: <i>yyyymmdd</i>	
<b>Default setting</b>	S		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable statements:	SET GLOBALS
		Applicable command:	GLOBALS
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the Utilities documentation.	



### Notes:

1. Within a Natural session, the profile parameter DFOUT can be overridden by the session parameter DFOUT.
2. The *profile parameter* DFOUT is evaluated at runtime.
3. It applies to date fields in INPUT, DISPLAY, PRINT and WRITE statements for which no explicit edit mask is specified and for which the *session parameter* DF is not set.

4. The sequence of the day, month and year components in the date settings is determined by the [DTFORM](#) profile parameter.
5. See also *Processing of Date Information* in the *Programming Guide*.



# 69

## DFSTACK - Date Format for Stack

This Natural profile and session parameter determines the format in which the settings of date variables are placed on the stack via a `STACK`, `RUN` or `FETCH` statement.

<b>Possible settings</b>	S	Date variables are placed on the stack with a 2-digit year component, and delimiters as determined by the profile parameter <code>DTFORM</code> .  Example: <i>yy-mm-dd</i>	
	C	Same as <code>DFSTACK=S</code> .  In addition, if the century used when the setting is read from the stack is not the same as that of the original date setting, Natural will issue a runtime error.	
	I	Date variables are placed on the stack with a full 4-digit year component and no delimiters.  Example: <i>yyyymmdd</i>	
<b>Default setting</b>	S		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable statement:	SET GLOBALS
		Applicable command:	GLOBALS
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.	



**Notes:**

1. Within a Natural session, the profile parameter `DFSTACK` can be overridden by the session parameter `DFSTACK`.
2. The profile parameter `DFSTACK` does not apply to `STACK`, `RUN` or `FETCH` statements for which the session parameter `DF` is set.
3. See also *Processing of Date Information* in the *Programming Guide*.

# 70

## DFTITLE - Output Format of Date in Standard Report Title

This Natural profile and session parameter determines the output format of the date in the default title line of a report page (as output with a DISPLAY, WRITE or PRINT statement).

<b>Possible settings</b>	S	The date is output with a 2-digit year component and delimiters.  Example: <i>yy-mm-dd</i>	
	L	The date is output with a 4-digit year component and delimiters.  Example: <i>yyyy-mm-dd</i>	
	I	The date is output with a 4-digit year component and no delimiters.  Example: <i>yyyymmdd</i>	
<b>Default setting</b>	S		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable statement:	SET GLOBALS
		Applicable command:	GLOBALS
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT Utility - Natural Application Programming Interfaces in the Utilities</i> documentation.	



### Notes:

1. Within a Natural session, the profile parameter DFTITLE can be overridden by the session parameter DFTITLE.
2. DFTITLE is evaluated at runtime and determines whether the date is displayed with a 2-digit or 4-digit year component with or without delimiters.

3. It has no effect on a user-defined page title (as specified with a `WRITE TITLE` statement).
4. The sequence of the day, month and year components and the delimiter characters used are determined by the profile parameter `DTFORM`.
5. See also *Processing of Date Information* and *Date Format for Default Page Title - DFTITLE Parameter* in the *Programming Guide*.

# 71 DL - Display Length for Output

---

With this session parameter, you specify the display length for a field of format A or U. The default display length is the length of the field.

<b>Possible settings</b>	1 to $n$	$n$ = value of <code>LS</code> (line size) parameter minus 1
<b>Default setting</b>	none	
<b>Applicable statements</b>	FORMAT	
	DISPLAY INPUT PRINT WRITE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	

## Example:

```
FORMAT DL=20
```

For further information and an example of the `DL` session parameter usage, see the following topics in the *Programming Guide*:

- *Parameters to Influence the Output of Fields*
- *Output Length - AL and NL Parameters*
- *Display Length for Output - DL Parameter*



# 72

## DLISIZE - Size of Natural Buffer Area for DL/I

---

This Natural profile parameter determines the maximum size of the buffer area required by Natural for DL/I.

<b>Possible settings</b>	26 - 512	Buffer size in KB.  <b>Note:</b>  1. The size actually required depends on the specifications in the NDLPARM macro (see the <i>Natural for DL/I</i> documentation). 2. If you use the default specifications in NDLPARM, DLISIZE=26 is sufficient.
	0	If you do not need DL/I support during a Natural session, you are recommended to invoke Natural with DLISIZE=0 to avoid overhead caused by handling of unused buffers.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to Natural for DL/I.
2. If the size specified with the DLISIZE parameter is not sufficient, an appropriate error message at initialization of Natural for DL/I will tell you what size to specify.
3. If Natural for DL/I is installed, the corresponding Natural buffers are requested at the initialization of the Natural session.
4. If the requested space is not available, Natural for DL/I cannot be used.





# 73

## DO - Display Order of Output Data

This Natural profile and session parameter specifies how fields are to be interpreted for display on terminals that support bidirectional data.

<b>Possible settings</b>	L	Specifies that the data from the application is in logical display order.  <b>Note:</b> The field characters are displayed according to their character property (left-to-right or right-to-left).	
	V	Specifies that the data from the application is in visual order.  <b>Note:</b>  1. All fields are inverted by Natural before they are sent to the terminal.  2. This option is required for old applications written for terminals which support inverse (right-to-left) print mode, activated by profile parameter PM=I or terminal command %VON.	
<b>Default setting</b>	L		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable statement:	SET GLOBALS
		Applicable command:	GLOBALS



### Notes:

1. The I/O device must be able to create the correct display order depending on the character properties. This is for instance the case if an application runs in a browser under Natural Web I/O Interface. For other terminal types, this parameter does not have any effect.
2. For detailed information on how to use the setting PM=I, see *Bidirectional Language Support in the Unicode and Code Page Support* documentation.



# 74 DS - Define Size of Storage Buffer

---

- DS Parameter Syntax ..... 218
- NTDS Macro Syntax ..... 219
- Table of Buffer Sizes ..... 219
- Example of DS Parameter ..... 222
- Example of NTDS Macro ..... 222

This Natural profile parameter defines the default initial size of various Natural storage buffers. It corresponds to the `NTDS` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>DS Parameter Syntax</i> .	
<b>Default setting</b>	See <i>Table of Buffer Sizes</i> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the corresponding macro <code>NTDS</code> is used instead.
<b>Specification within session</b>	no	



**Notes:**

1. In previous versions of Natural, individual profile parameters (for example, `SSIZE`) were used to define the sizes of the buffers. The `DS` profile parameter is a universal parameter to specify all buffer sizes.
2. You may continue using the individual parameters or you may use the individual parameters in parallel to the parameter `DS`. During the dynamic parameter evaluation, individual buffer size parameters are converted internally into the new `DS` parameter format, for example, `SSIZE=55` is converted into `DS=(SSIZE,55)`.
3. However, there are some buffer sizes (for example, `ESIZE`, `VSIZE`, etc.) which cannot be specified by the profile parameter `DS`, due to certain reasons, for example, the size is part of a larger buffer or the size defines the total maximum of a number of buffers.
4. For further information, see *Natural Storage Management* and *General Rules for Parameter Usage* in the *Operations* documentation.

The following topics are covered below:

## DS Parameter Syntax


---

The `DS` parameter is specified as follows:

```
DS=(name,size,name,size,...)
```

Where:

Syntax Element	Value	Explanation
<i>name</i>	1 - 8 characters.	The buffer name (1-8 characters), see <a href="#">Table of Buffer Sizes</a> .
<i>size</i>	-	The buffer size in kilobytes. For limit values, see <a href="#">Table of Buffer Sizes</a> .

 **Note:** Multiple pairs of buffer name and size values can be specified; see [Example of DS Parameter](#).

## NTDS Macro Syntax

The NTDS macro is specified as follows:

```
NTDS name, size
NTDS name, size
...
```

Where:

Syntax Element	Value	Explanation
<i>name</i>	1 - 8 characters.	The buffer name (1-8 characters), see <a href="#">Table of Buffer Sizes</a> .
<i>size</i>	-	The buffer size in kilobytes. For limit values, see <a href="#">Table of Buffer Sizes</a> .

 **Note:** A separate NTDS macro must be specified for each pair of name and size values; see [Examples of NTDS Macros](#).

## Table of Buffer Sizes

Buffer Name	Description	Buffer Size (KB)	Default	Available as subparameter of DS and alternatively as individual profile parameter
<a href="#">ASIZE</a>	Entire System Server auxiliary buffer	0 or 64 - 512	0	yes <b>Note:</b> For details, see description of profile parameter <a href="#">ASIZE</a> .
<a href="#">BSIZE</a>	Size of EntireX Broker buffer	0 or 1 - 64	0	yes
<a href="#">CSIZE</a>	Size of Con-nect/Con-form buffer area	0 or 1 - 512	0	yes
<a href="#">DATSIZE</a>	Size of buffer for local data	10 - 2097151	32	yes

Buffer Name	Description	Buffer Size (KB)	Default	Available as subparameter of DS and alternatively as individual profile parameter
DSIZE	Initial size of DBLOG buffer	0 or 2 - 2097151	2	yes  <b>Note:</b> The individual profile parameter <code>DSIZE</code> allows you to set a maximum size in addition.
EDPSIZE	Size of the Software AG Editor auxiliary buffer pool	0 or 48 - 2097151	0	yes
ETPSIZE	Size of Entire Transaction Propagator buffer	0 or 10 - 128	0	yes
EXCSIZE	Size of buffer for Natural Expert C interface	n/a	n/a	yes  <b>Note:</b> This subparameter is only retained for compatibility reasons.
EXRSIZE	Size of buffer for Natural Expert rule tables	n/a	n/a	yes  <b>Note:</b> This subparameter is only retained for compatibility reasons.
FLTUSER	<p>Size of buffer for fast locate table and subroutine cache.</p> <p>Information contained in the fast locate table improves performance when Natural objects are called repeatedly. Information contained in the subroutine cache improves performance when the name of the module in which the subroutine is defined is being retrieved from the subroutine name specified with the <code>PERFORM</code> statement.</p> <p>The <code>FLTUSER</code> buffer contains only information related to Natural objects belonging to the user's application.</p>	0 or 4 - 2097151	8	<p>Available only as subparameter of DS.</p> <p><b>Note:</b> The value 0 enforces that neither a fast locate table nor a subroutine cache is allocated and will cause more database calls to be issued in order to retrieve information about Natural objects that are to be called. Therefore, the value 0 should only be used in environments where Natural objects of the same name exist in different <i>steplib</i> libraries (see <i>Steplib Libraries in Using Natural</i>), and the <i>steplib</i> libraries should always be searched for an object in the defined order.</p> <p>The following formula helps estimate the initial buffer size required to store all entries in the fast locate table:</p>

Buffer Name	Description	Buffer Size (KB)	Default	Available as subparameter of DS and alternatively as individual profile parameter
				6 KB + (number of objects * 112 bytes)  which corresponds to a setting of DS=(FLTUSER,21).  This specifies the buffer size for the session start; more space is allocated automatically during the session if required.
MONSIZE	Size of SYSTP monitor buffer	0 or 5 - 256	0	yes
MULFETCH	Size of multi-fetch buffer	0 or 1 - 1024	64	Available only as subparameter of DS.  <b>Note:</b> A value specified for this buffer does not represent the default initial size but the maximum size which can be allocated for multi-fetch purposes.  See <i>Size of the Multi-Fetch Buffer</i> in the <i>Programming Guide</i> .
NAFSIZE	Size of buffer for Natural Advanced Facilities	0 or 1 - 64	0	yes
NSFSIZE	Size of SAF interface buffer.	0 or 8 - 64	0	Available only as subparameter of DS.  See information on how to adjust the Natural parameter module in <i>Installing and Activating Natural SAF Security</i> in the <i>Natural SAF Security</i> documentation.
RDCSIZE	Size of buffer for the Natural Data Collector	0 or 2 - 128	0	yes
RJESIZE	Initial size of NATRJE buffer	0 or 1 - 2097151	8	yes
RUNSIZE	Size of runtime buffer	10 - 64	16	yes
SSIZE	Size of Software AG Editor buffer	0 or 40 - 512	64	yes
TSIZE	Size of the buffer for Adabas Text Retrieval	0 or 1 - 2097151	0	yes
WSISIZE	Buffer for Natural Workstation Interface	0 or 10 - 256	0	yes
ZSIZE	Size of Entire DB buffer area	0 or 1 - 64	0	yes

For detailed information, refer to the descriptions of the individual buffer size parameters.

## Example of DS Parameter

---

```
DS=(ASIZE,33,TSIZE,60,EDPSIZE,500)
```

## Example of NTDS Macro

---

```
NTDS ASIZE,33  
NTDS TSIZE,60  
NTDS EDPSIZE,500
```



# 75

## DSC - Data-Stream Compression (for 3270-Type Terminals)

---

With this parameter, you can switch off Natural's automatic optimization *and* compression of the screen data stream for 3270-type terminals.

<b>Possible settings</b>	ON	Data-stream optimization and compression are used.
	OFF	Data-stream optimization and compression are <i>not</i> used.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to 3270-type terminals.
2. Screen optimization means that only those fields of the screen are sent to the terminal whose content has changed. Screen compression constitutes a (further) reduction of the amount of data sent by using counters for repeating characters.
3. Natural's screen optimization causes screen data to be sent as compressed as possible. If this should conflict with any TP monitor's screen optimization or hardware limitation, you can use this parameter to switch off Natural's screen optimization; screen data will then be sent in non-compressed form; for example, see *Profile Parameter DSC=OFF Recommended* in the *Natural under CICS* documentation.
4. This parameter has the same function as the terminal command %R0.
5. If you use the **BX** session parameter settings BX=L or BX=R, you should switch off Natural's screen optimization using DSC=OFF or %R0OFF.



# 76

## DSIZE - Size of DBLOG Buffer

---

This Natural profile parameter specifies the size of the Natural DBLOG buffer.

<b>Possible settings</b>	See <i>DSIZE Parameter Syntax</i>	
<b>Default setting</b>	2,256	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Alternatively, you can use the Natural profile parameter **DS** or macro **NTDS** to specify the size of the buffer.
2. The Natural DBLOG buffer area is used by the DBLOG utility, which is described in the *Utilities* documentation.

### DSIZE Parameter Syntax

The parameter syntax is as follows:

```
DSIZE=initial-size
```

DBSIZE=0 disables the DBLOG utility.

Or:

DSIZE=(*initial-size,maximum-size*)

Where:

Syntax Element	Value	Explanation
<i>initial-size</i>	2 - 2097151	DBLOG buffer initial size in KB.  <b>Note:</b> If the initial size is not sufficient, Natural automatically increases the buffer size (repeatedly, if necessary) up to the specified maximum.
<i>maximum-size</i>	2 - 2097151	DBLOG buffer maximum size in KB.  <b>Note:</b> If the value is not greater than the initial size, the DSIZE buffer is not increased.

**Examples:**

DSIZE=100

DSIZE=(,2500)

DSIZE=(50,800)

# 77

## DTFORM - Date Format

This Natural profile parameter indicates the default format in which dates are to be provided automatically by Natural as part of the default title on Natural reports, as date constants and date input.

Possible settings	Value	Area	Date Format
	E	Europe	DD/MM/YYYY
	G	Germany	DD.MM.YYYY
	I	International	YYYY-MM-DD
	U	USA	MM/DD/YYYY
<b>Default setting</b>	I		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	no		
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.	



### Notes:

1. The first day of a week is assumed to be Monday - unless DTFORM=U is specified, in which case Sunday is used.
2. For date constants, the year component (YYYY) consists of all four digits. Only the last two digits of the year component are used for reports, date input, the Natural system function VAL, and when the date is moved to an alphanumeric field.
3. The output format of the date in a default report page title is also specified by the profile parameter [DFTITLE](#).
4. See also *Processing of Date Information* and *Default Edit Mask for Date - DTFORM Parameter* in the *Programming Guide*.



# 78

## DU - Dump Generation

This Natural profile and session parameter determines whether a memory dump is to be generated in the case of an abnormal termination during the Natural session.

<b>Possible settings</b>	ON	A memory dump is produced in the case of an abnormal termination (TP-monitor dump data set or SYSUDUMP in z/OS batch mode or under TSO). Then the Natural session terminates with the error message NAT9967 or NAT9974.
	OFF	No memory dump is produced.  <b>Note:</b>  1. In batch mode, subsequent action taken by Natural is determined by the setting of the CC profile parameter. 2. In online mode, Natural responds with the error message NAT0950, NAT0953, NAT0954, NAT0955 or NAT0956. 3. For further information on the abnormal termination, you can use the system command DUMP.
	SNAP	This setting forces an immediate dump in the case of an abnormal termination during a Natural session.  <b>Note:</b> The Natural session continues as with DU=OFF after the dump has been taken.
	FORCE	This setting forces an immediate dump in the case of an abnormal termination during a Natural session and terminates the Natural session immediately. This is useful for testing purposes in some environments.  <b>Note:</b> If Natural is LE enabled, Natural terminates the Natural session immediately without a dump and passes control to the LE error handling. It is therefore strongly recommended to specify the LE run-time option TERMTHDACT(UAIMM) to get all the required diagnostic information.
	ABEND	This works as with DU=ON, except that the session is terminated with the abend occurred - instead of the error message NAT9974.

		<b>Note:</b> DU=ABEND is not available with the Natural session parameter DU.	
<b>Default setting</b>	OFF		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Applicable statement:	SET GLOBALS
		Applicable command:	GLOBALS



**Notes:**

1. Within a Natural session, the profile parameter DU can be overridden by the session parameter DU.
2. Setting the DU profile parameter may impair the system performance considerably, due to I/O processing on the dump data set.
3. Be careful when you use this parameter, because all programs and subroutines currently active for the current user will be retained in the Natural buffer pool.
4. DU=ON, DU=SNAP or DU=FORCE may cause buffer fragmentation which may result in a significant degradation in system performance.
5. Under *openUTM*, this parameter is ignored; under *openUTM*, a dump is always produced in the case of an abnormal program termination.
6. Profile parameter DUE can be used to get a storage dump for specific errors.
7. Under Natural Security, the setting of this parameter can be overridden by the *Session Parameters* option of the Library Profile.



# 79

## DUE - Dump Generation, Error-Specific

---

This Natural profile parameter can be used to specify Natural error numbers for which a storage dump shall be taken.

<b>Possible settings</b>	1 - 9999	A single error number or multiple error numbers (separated by a comma and enclosed in parentheses) for which a dump shall be taken.  <b>Note:</b> If DUE is specified multiple times, all error numbers are saved in one table.
	OFF	Deletes the table and any error numbers specified previously are removed.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	Terminal command %DUE



### Notes:

1. This type of storage dump may be helpful to get a dump for the analysis of a specific error situation by Software AG personnel.
2. If an error occurs which has been specified by DUE, a program check is forced.
3. If the profile/session parameter DU=OFF is set, it will be changed to DU=ON. For further processing, the DU parameter setting is honored.

**Examples:**

```
DUE=1302  
DUE=(6501,6502,6503,1500)  
DUE=OFF
```

# 80

## DY - Dynamic Attributes

---

- DY Parameter Syntax ..... 235
- Examples ..... 236

This session parameter is used to assign attributes for dynamic attribute field display.

<b>Possible settings</b>	See <i>DY Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Applicable statements</b>	DISPLAY INPUT PRINT WRITE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	

Special identification characters (escape characters) are used to indicate the beginning and end of attribute definitions.

An alphanumeric field which is processed with an INPUT, DISPLAY, WRITE or PRINT statement, and which contains escape characters, is split into subfields at the escape character position. The corresponding attribute is then assigned to the subfield. A blank is substituted for the escape character.

For a part of a field for which a DY specification applies, the current field presentation and color is changed to what is newly defined in the DY entry. If the DY segment *does not contain a new setting* for the

■ **field presentation**

(means *no* B, C, D, I, N, U, V), the attribute active for the complete field remains in effect, regardless of whether originally derived from a static setting (for example, AD=I) or from a control variable (for example, CV=#C).

■ **field color**

(means *no* BL, GR, NE, PI, RE, TU, YE), the color is set to what is statically assigned to the field (with CD=. .), without considering a color which was possibly set via a control variable (CV=. .). If the field has no static (CD=. .) assignment, the color information is completely removed from the field segment affected by the DY manipulation.

The following topics are covered below:

## DY Parameter Syntax

```
DY={{escape-character1} [color-attribute] [i/o-characteristics]
[field-representation-attribute]} ... {escape-character2}
```

The possible settings are explained below.

*escape-character1*

An escape character which denotes the beginning of the attribute definition. Any special character or a hexadecimal number preceded by an apostrophe ('xx) may be used.

*color-attribute*

The color attribute to be assigned. See also session parameter [CD](#) (color definition).

BL	blue
GR	green
NE	neutral
PI	pink
RE	red
TU	turquoise
YE	yellow

*i/o-characteristics*

Value	Meaning
P	Subfield is to be write-protected.

A P may be specified to make the subfield write-protected. See also session parameter [AD](#) (attribute definition).

*field-representation-attribute*

Additional attributes to be assigned. See also session parameter [AD](#) (attribute definition).

Value	Meaning
B	blinking (*)
C	cursive/italic (*)
D	default intensity
I	intensified
N	non-display
U	underlined
V	reverse video (*)

\* The field representation attributes marked with an asterisk (\*) require corresponding hardware features, and will be ignored at runtime if these features are not available.

*escape-character2*

An escape character which denotes the end of the attribute definition. Any special character (*c*) or a hexadecimal number preceded by an apostrophe ( 'xx) may be used.

You may specify up to eight escape sequences (escape characters and attributes) before the character indicating the end of the attribute definitions.

## Examples

---

### Example 1:

```
DY=<U>
```

The text string:

```
THIS <i s> UNDERLINED
```

is printed as:

```
THIS i s UNDERLINED
```

**Example 2:**

```
DY=<BL|RE/GR>
```

Assigns:

Blue to <

Red to |

Green to /

> switches back to the initial field color.

**Example 3:**

```
DY=<P>;
```

The text string:

```
Do not overwrite <this>
```

is printed as:

```
Do not overwrite this
```

(where this is protected)





# 81 DYNPARM - Control Use of Dynamic Parameters

---

▪ DYNPARM Parameter Syntax .....	240
▪ NTDYNP Macro Syntax .....	241
▪ Examples .....	241

This Natural profile parameter can be used to restrict the use of dynamic profile parameters outside of **PROFILE** and **SYS** profile parameter strings. It corresponds to the **NTDYNP** macro in the Natural parameter module.

<b>Possible settings</b>	ON or OFF, with or without list of profile parameters. See <i>DYNPARM Parameter Syntax</i> .	
<b>Default setting</b>	ON	With DYNPARM=ON, all profile parameters can be specified dynamically.
<b>Dynamic specification</b>	yes	Outside of <b>PROFILE</b> or <b>SYS</b> parameter strings, the DYNPARM parameter can be used only once and only if the <b>NTDYNP</b> macro is not specified in the Natural parameter module.
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



**Notes:**

1. The parameter restrictions defined by DYNPARM (or the NTDYNP macro) do not apply within **PROFILE** or **SYS** profile parameter strings. If DYNPARM is used within **PROFILE** or **SYS** strings, it replaces any previous restrictions defined by DYNPARM or macro NTDYNP.
2. DYNPARM can be used only once within one string and should be placed at the end of it.

The following topics are covered below:

## DYNPARM Parameter Syntax

---

The DYNPARM parameter is specified as follows:

```
DYNPARM=ON
```

All profile parameters can be specified dynamically.

```
DYNPARM=(ON, parameter-name, parameter-name, ...)
```

Only those parameters whose *parameter-name* is specified, can be specified dynamically. Other parameters cause Error Message NAT7008 to be issued.

Or:

```
DYNPARM=OFF
```

No profile parameters can be specified dynamically.

```
DYNPARM=(OFF,parameter-name,parameter-name,...)
```

All profile parameters can be specified dynamically - except those whose *parameter-name* is specified. These parameters cause Error Message NAT7008 to be issued.

## NTDYNP Macro Syntax

The NTDYNP macro is specified as follows:

```
NTDYNP ON,parameter-name1,parameter-name2,parameter-name3
NTDYNP parameter-name4,parameter-name5,...
```

Only those parameters whose *parameter-name* is specified, can be specified dynamically. Other parameters cause Error Message NAT7008 to be issued.

Or:

```
NTDYNP OFF,parameter-name1,parameter-name2,parameter-name3
NTDYNP parameter-name4,parameter-name5,...
```

All profile parameters can be specified dynamically - except those whose *parameter-name* is specified. These parameters cause Error Message NAT7008 to be issued.

## Examples

The example illustrates restricting of the dynamic parameters [FNAT](#) and [FSEC](#). In the Natural parameter module, the following parameter restriction should be defined:

```
NTPRM DBID=0,FNR=0
NTDYNP ON,PROFILE
```

Additionally, almost all parameter profiles could look like the following:

```
..., FNAT=(22,7,PASSW), FSEC=(22,9,PASSW), DYNPARM=(OFF, FNAT, FSEC)
```

If some special users are to be allowed to use all parameters including FNAT and FSEC, their parameter profiles could look like the following:

```
USER=(ADM1,ADM2), ..., FNAT=(22,8), FUSER=(22,12), DYNPARM=(OFF, DUMMY)
```

This forces normal users to enter the [PROFILE](#) parameter as the first dynamic parameter. Subsequently, all parameters except FNAT and FSEC are allowed. Of course, the access to the parameter profile application SYSPARM must be restricted.

# 82

## ECHO - Control Printing of Batch Input Data

---

This Natural profile parameter is used to enable or disable the printing of input data from the data set CMSYNIN or CMOBJIN for INPUT statements provided to Natural during batch mode processing.

<b>Possible settings</b>	ON	Natural prints the input data provided during batch mode processing to the batch output file CMPRINT.
	OFF	Natural does <i>not</i> print input data provided during batch processing.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies in batch mode.
2. It is also possible to suppress printing of a *single input line* by preceding it with a line containing the terminal command for record suppression %\*.



# 83

## EDBP - Software AG Editor Buffer Pool Definitions

---

▪ EDBP Parameter Syntax .....	246
▪ NTEDBP Macro Syntax .....	247
▪ Keyword Subparameters .....	247
▪ Example of EDBP Parameter .....	253
▪ Example of NTEDBP Macro .....	253

This Natural profile parameter controls the initialization and operation of the editor buffer pool and its work file. It corresponds to the `NTEDBP` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>EDBP Parameter Syntax</i> .	
<b>Default setting</b>	See <i>Keyword Subparameters</i> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTEDBP</code> is used instead.
<b>Specification within session</b>	yes	Use the SYSED utility; see <i>SYSED Utility - Editor Buffer Pool Administration</i> .



#### Notes:

1. The editor buffer pool is defined for a session by profile parameter `BPI` with `TYPE=EDIT` or by profile parameter `EDPSIZE` (editor auxiliary buffer pool).
2. Shared Editor Buffer Pool: If the editor buffer pool is shared between multiple Natural sessions, all subparameters (except `DDNAME`, `DSNAME` and `FMODE`) are honored by the very first session only, which initializes the editor buffer pool work file during a buffer pool cold start. During a buffer pool warm start, the editor buffer pool subparameters (except `DDNAME`, `DSNAME` and `FMODE`) are read from the buffer pool work file. With subparameter `COLD=ON`, a buffer pool cold start can be forced during the initialization of the editor buffer pool.
3. Editor Auxiliary Buffer Pool: If an editor auxiliary buffer pool is used (see profile parameter `EDPSIZE`), only the following subparameters apply: `FTOUT` | `LRECL` | `MAXLF`
4. For further information on the editor buffer pool, refer to *Editor Buffer Pool* in the *Operations* documentation.
5. For information on buffer pool performance, refer to *SYSED Utility - Editor Buffer Pool Administration* in the *Utilities* documentation.

The following topics are covered below:

## EDBP Parameter Syntax

The `EDBP` parameter is specified as follows:

```
EDBP=(keyword-subparameter=value,keyword-subparameter=value,...)
```

See *Keyword Subparameters*.



## NTEDBP Macro Syntax

The NTEDBP macro is specified as follows:

```

NTEDBP CHECK=value, *
      COLD=value, *
      CTOUT=value, *
      DDNAME=value, *
      DSNAME=value, *
      DTOUT=value, *
      FMODE=value, *
      FTOUT=value, *
      IMSG=value, *
      ITOUT=value, *
      LRECL=value, *
      LTOUT=value, *
      MAXLF=value, *
      PWORK=value, *
      RECNUM=value, *
      RWORK=value, *
      UTOUT=value

```

See [Keyword Subparameters](#).

## Keyword Subparameters

CHECK | COLD | CTOUT | DDNAME | DSNAME | DTOUT | FMODE | FTOUT | IMSG | ITOUT | LRECL | LTOUT  
| MAXLF | PWORK | RECNUM | RWORK | UTOUT

### CHECK – Check and Initialize the Software AG Editor at Session Start

CHECK=*value* specifies whether the Software AG Editor is checked and initialized already during the start of the Natural session rather than at the first call of the Software AG Editor.

Value	Explanation
ON	<p>The Software AG Editor is initialized during the Natural session start if the following conditions are true:</p> <ol style="list-style-type: none"> <li>1. The Software AG Editor module NAT EDT is linked to Natural.</li> <li>2. The profile parameter <code>SSIZE</code> is set to a nonzero value.</li> </ol> <p>During the Software AG Editor initialization, the <code>SSIZE</code> buffer is allocated, and the Software AG Editor buffer pool and (if <code>EDPSIZE=0</code>) its work file are accessed and checked for availability.</p>

Value	Explanation
OFF	The check and the initialization are done during the first call of the Software AG Editor.  This is the default value.

### COLD - Buffer Pool Cold Start

COLD=*value* specifies whether a buffer pool cold start is performed.

Value	Explanation
ON	Cold start is performed.
OFF	Cold start is not performed.  This is the default value.



**Note:** A cold start means that the buffer pool work file is cleared and reinitialized during buffer pool initialization. Any editor recovery information and all buffer pool parameters stored in the work file are lost.

### CTOUT - Timeout for Changed Buffer Pool Blocks

CTOUT=*value* specifies the timeout value for changed buffer pool blocks.

Value	Explanation
1 - 32767	Timeout value (in seconds).
120	This is the default value.



**Note:** A changed buffer pool block is written to the work file after the specified time interval has been exceeded, and no unchanged or free block is available.

### DDNAME - Logical Work File Name of the JCL Definition

DDNAME=*value* specifies the logical work file name of the JCL definition.

Value	Explanation
1 - 8 bytes.	Name of the logical work file.
CMEDIT	This is the default value.



**Notes:**

1. Under CICS: A corresponding file control table entry must be defined for the editor work file.
2. Under Com-plete: The specified logical work file name is the name of the SD file.

**DSNAME - Work File Data Set Name**

DSNAME=*value* specifies the work file data set name for batch and TSO.

Possible values:

Value	Explanation
1 - 44	Name of the work file data set (in bytes).
	There is no default value.

This subparameter applies under z/OS only.

If no DD JCL statement is supplied and no ALLOC statement is issued (under TSO only) for the editor work file, then DSNAME will be allocated dynamically.

**DTOUT - Logical File Timeout Check Value**

DTOUT=*value* specifies the logical file timeout check value.

Value	Explanation
1 - 32767	Timeout check value (in seconds).
300	This is the default value.



**Note:** Logical files are checked for timeout each time the specified time interval has been exceeded.

**FMODE - Work File Mode**

FMODE=*value* specifies the file mode for the work file.

Value	Explanation
1 - 2 characters	File mode.  Under Com-plete/SMARTS, the value SM determines that a SMARTS work file is used. In this case, the SMARTS environment variable \$NAT_WORK_ROOT determines the path.  Under Com-plete/SMARTS, if a value other than SM is specified, a Com-plete SD file is used.  In a SMARTS environment without Com-plete, SM must be specified.
A1	This is the default value.



**Note:** This subparameter applies under Com-plete/SMARTS only.

### FTOUT - Timeout Value for Logical Files

FTOUT=*value* specifies the timeout value for logical files.

Value	Explanation
60 - 16777215	Timeout value (in seconds).
86400	This is the default value.



**Note:** A logical file is deleted after the specified time interval has been exceeded and no access has occurred.

### IMSG - Buffer Pool Initialization and Termination Message

IMSG=*value* specifies whether a buffer pool initialization and termination message is issued on the operator console.

Value	Explanation
ON	A buffer pool initialization and termination message is issued.
OFF	No buffer pool initialization and termination message is issued. This is the default value.

### ITOUT - Buffer Pool Initialization Timeout Value

ITOUT=*value* specifies the buffer pool initialization timeout value for multi-user buffer pools only.

Value	Explanation
1 - 32767	Buffer pool initialization timeout value (in seconds).
300	This is the default value.



**Note:** The buffer pool is initialized by the first user by whom it is accessed. Other users have to wait until the first user finishes initialization. If the initialization is not finished after the specified time interval (for example, due to an abnormal termination of the first user), all other users receive an error message.

## LRECL - Work File Record Length

LRECL=*value* specifies the buffer pool block size and work file record length.

Value	Explanation
800 - 16384	Length (in bytes). Under BS2000/OSD, the record length must be a multiple of 2048 bytes.
4096	This is the default value.



### Notes:

1. This parameter is honored under BS2000/OSD, under Complete, and for editor auxiliary buffer pools only.
2. For other environments, the work file record length is determined when the editor work file is created.

## LTOUT - Timeout Value for Locked Buffer Pool Blocks

LTOUT=*value* specifies the timeout value for locked buffer pool blocks.

Value	Explanation
1 - 32767	Timeout value (in seconds).
20	This is the default value.



**Note:** A buffer pool block that was locked during a read from the work file is freed after the specified time interval has been exceeded.

## MAXLF - Maximum Number of Logical Files

MAXLF=*value* specifies the maximum number of logical files.

Value	Explanation
100 - 999999	Maximum number of logical files.
1000	This is the default value.

### PWORK - Percentage of Work File Records Used as Work Records

PWORK=*value* specifies the percentage of work file records used as work records during an editor buffer pool cold start.

Value	Explanation
0 - 100	Work file records used (in percent).
50	This is the default value.



**Note:** The remaining records are used as recovery records.

### RECNUM - Number of Work File Records

RECNUM=*value* specifies the number of work file records (under Com-plete only) during an editor buffer pool cold start.

Value	Explanation
100 - 65535	Number of work file records.
200	This is the default value.



**Notes:**

1. This subparameter applies under Com-plete only.
2. This number determines the size of the work file.
3. The number of work file records is determined when the editor work file is created.

### RWORK - Percentage of Work Records Used for Regular Logical Files

RWORK=*value* specifies the percentage of work records that is used for regular logical files during an editor buffer pool cold start.

Value	Explanation
51 - 100	Work records used (in percent).
90	This is the default value.



**Note:** The remaining records are used internally to release blocks from the buffer pool.

## UTOUT - Timeout Value for Unchanged Buffer Pool Blocks

UTOUT=*value* specifies the timeout value for unchanged buffer pool blocks.

Value	Explanation
1 - 32767	Timeout value (in seconds).
20	This is the default value.



**Note:** An unchanged buffer pool block is written to the work file after the specified time interval has been exceeded and no free block is available.

## Example of EDBP Parameter

```
EDBP=(DDNAME=EDFILE1,IMSG=ON,CHECK=ON)
```

## Example of NTEDBP Macro

```
NTEDBP DDNAME=EDFILE1,IMSG=ON,CHECK=ON
```





# 84

## EDPSIZE - Size of Software AG Editor Auxiliary Buffer

### Pool

---

This Natural profile parameter determines the size of the Software AG Editor auxiliary buffer pool.

<b>Possible settings</b>	48 -2097151	Editor auxiliary buffer pool size in KB.
	0	No editor auxiliary buffer pool is used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



#### Notes:

1. This Natural profile parameter must be used when the Software AG Editor runs in a z/OS Parallel Sysplex environment. It allows the Software AG Editor to be run without a Software AG Editor (local or global) buffer pool.
2. Alternatively, you can use the equivalent Natural profile parameter **DS** or macro **NTDS** to specify the size of the buffer.
3. No Software AG Editor work file is required for the auxiliary buffer pool.
4. When the auxiliary buffer pool is used, the Software AG Editor's recovery function is not available.
5. If **EDPSIZE** is not zero, an auxiliary buffer pool is allocated and used although a (local or global) Software AG Editor buffer pool is defined with the **BPI** profile parameter or the **NTBPI** macro.
6. For further information on the Software AG Editor, see *Operating the Software AG Editor* in the *Operations* documentation.



# 85 EJ - Page Eject

This Natural profile and session parameter is used to specify whether a page eject is to be performed as a result of a logical page break, a break between program input and output, and the “normal end” message.

<b>Possible settings</b>	ON	A page eject is performed.		
	OFF	No page eject is performed.  <b>Note:</b> This setting may be used to save paper during test runs where page ejects are not needed.		
<b>Default setting</b>	ON			
<b>Dynamic specification</b>	yes			
<b>Specification within session</b>	yes	Applicable statement:	SET GLOBALS	Parameter is evaluated at runtime.
		Applicable command:	GLOBALS	Parameter may be specified dynamically with the GLOBALS system command.
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.		



## Notes:

1. Within a Natural session, the profile parameter EJ can be overridden by the session parameter EJ.
2. The EJ setting can in turn be overridden by an EJECT statement.
3. This parameter only applies to the first report (Report 0). For additional reports, the statement EJECT with report specification (*rep*) has to be used.

4. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.



**Caution:** The profile parameter EJ has a slightly different meaning when specified for a Natural session under CICS in batch mode (for example, TTYPE=ASYL or TTYPE=BTCH). For details, see *Asynchronous Natural Processing under CICS* in the *TP Monitor Interfaces* documentation.

# 86

## EM - Edit Mask

---

▪ EM Parameter Syntax .....	260
▪ Examples .....	261
▪ Blanks in Edit Masks .....	261
▪ Default Edit Masks .....	261
▪ Edit Masks for Numeric Fields .....	262
▪ Edit Masks for Alphanumeric Fields .....	265
▪ Edit Masks for Binary Fields - Format B .....	267
▪ Hexadecimal Edit Masks .....	267
▪ Edit Masks for Date and Time Fields - Formats D and T .....	269
▪ Edit Masks for Logical Fields - Format L .....	273

With this session parameter, you can specify an edit mask for an input and/or output field that is used in one of the statements listed in the following table under *Applicable statements*.

<b>Possible settings</b>	See <a href="#">EM Parameter Syntax</a> .	
<b>Default setting</b>	none	
<b>Applicable statements</b>	FORMAT	Parameter may be specified dynamically with the FORMAT statement.  <b>Note:</b> Only the setting EM=OFF, but no actual edit mask specification is admissible.
	DEFINE DATA DISPLAY INPUT PRINT PROCESS PAGE/PROCESS PAGE UPDATE WRITE	Parameter may be specified at statement level and/or at element level.
	MOVE EDITED	Parameter may be specified at element level.
<b>Applicable command</b>	none	



#### Notes:

1. For information on Unicode edit masks, see session parameter [EMU](#).
2. The parameter EM can also be used with U format fields. For information on Unicode format, see *Unicode and Code Page Support in the Natural Programming Language, Session Parameters*, EMU, ICU, LCU, TCU versus EM, IC, LC, TC.
3. See also *Edit Masks - EM Parameter* in the *Programming Guide*.

The following topics are covered below:

## EM Parameter Syntax

For input fields, values must be entered exactly matching the edit mask. If you would like to display the edit mask for an input field, the field should be defined as modifiable ([AD=M](#)).

For a database field, a default edit mask may have been defined in the DDM. If you specify with the EM parameter an edit mask for a database field, this edit mask specified will be used instead of any default edit mask which may be defined for the field in the DDM.

If you specify EM=OFF for a field, no edit mask will be used for the field, not even one that may be defined in the DDM.

At statement level of a DISPLAY, FORMAT, INPUT or WRITE statement, no detail field edit mask may be specified, except EM=OFF.

An edit mask overrides any settings for the session parameters AL, NL and SG.

The characters 9, H, X and Z represent significant print positions in numeric (9, Z), hexadecimal (H), and alphanumeric (X) edit masks. For the difference between 9 and Z, see [Edit Masks for Numeric Fields](#), below.

## Examples

```
DISPLAY AA(EM=OFF) AB(EM=XX.XX)
WRITE SALARY (EM=ZZZ,ZZ9)
```

You may replace a sequence of the same significant characters with a numeric notation, such as x(8) for xxxxxxxx. The following examples demonstrate the abbreviated notation which may be used for the significant characters of numeric (Z, 9), hexadecimal (H), alphanumeric (X) and date (N, L) edit masks:

```
EM=9(4)-9(5)      is equivalent to: EM=9999-99999
EM=H(10)          is equivalent to: EM=HHHHHHHHHHH
EM=X(6)..X(3)     is equivalent to: EM=XXXXXX..XXX
EM=YYYY-L(8)-DD-N(8) is equivalent to: EM=YYYY-LLLLLLLLL-DD-NNNNNNNN
```

## Blanks in Edit Masks

Blanks behind the equal sign (=) of the EM parameter are not allowed (for example: EM=<blank>XXX).

Blanks within an edit mask are represented by the character on your keyboard that in hexadecimal code corresponds to H'20' (ASCII) or H'5F' (EBCDIC), that is, the character ^ (or ¬).

## Default Edit Masks

If no edit mask is specified for a field, a default edit mask is assigned to the field depending on the field format:

Field Format	Default Edit Mask
A	X
B	H
N, P, I	Z9
F	scientific representation
D	depends on default date format (as set with the profile parameter <a href="#">DTFORM</a> )
T	HH:II:SS
L	blank / X

## Edit Masks for Numeric Fields

An edit mask specified for a field of format N, P, I, or F must contain at least one 9 or Z.

If more 9s or Zs exist than the number of positions contained in the field value, the number of print positions in the edit mask will be adjusted to the number of digits defined for the field value.

If fewer 9s or Zs exist, the high-order digits before the decimal separator and/or low-order digits after the decimal separator will be truncated.

The following topics are covered below:

- [Characters for the Definition of Numeric Edit Masks](#)
- [Sign Characters](#)
- [Literal Leading Characters](#)
- [Literal Insertion and Trailing Characters](#)
- [Trailing Sign Characters](#)
- [Examples of Numeric Edit Masks](#)

### Characters for the Definition of Numeric Edit Masks

Character	Function
9	Position to be displayed (one digit of the field value).
.	<p>(period) The first period inserted is used as a decimal separator. Subsequent periods are treated as literal characters.</p> <p><b>Note:</b> At this point, the period represents the sign currently defined as decimal separator character. If another character is chosen (for example, a comma) with the session or profile parameter <a href="#">DC</a>, this character is to be used instead.</p>
Z	Zero suppression for leading zeros. This is the default for numeric fields. The letter Z may be repeatedly specified to represent floating zero suppression. Z must not be specified to the right of the decimal separator character. A zero value may be displayed as blanks using all Zs in the edit mask (see also session parameter <a href="#">ZP</a> ).



The 9s or Zs can be preceded by one or more other characters.

### Sign Characters

If the first character before the 9s or Zs is +, -, S or N, a sign may be displayed:

Character	Function
+	A floating sign is to be displayed preceding (leading sign character) or following (trailing sign character) the number. The sign may be generated as a plus or minus depending on the value of the field.
-	A floating minus is to be displayed preceding (leading sign character) or following (trailing sign character) the number if the value of the field is negative.
S	A sign is to be displayed to the left of the column. A plus sign is displayed for a positive value and a minus sign is displayed for a negative value.
N	A minus sign is to be displayed to the left of the column if the value of the field is negative.

### Literal Leading Characters

Any number of literal leading characters can appear before the first displayable position (as indicated by Z or 9). These must follow any sign character. If there is no sign character and the first literal leading character is +, -, S or N, it must be enclosed in apostrophes. If a literal leading character is H, X, Z or 9, it must be enclosed in apostrophes.

The first literal leading character specified will appear in the output only if the value contains leading zeros and the edit mask is defined with Z (leading zero suppression). This character will then be used as a filler character displayed instead of a blank for leading zeros. Subsequent literal leading characters will be displayed as they are input.

### Literal Insertion and Trailing Characters

Literal insertion and trailing characters can also be used. The symbol (^) can be used to represent a leading, inserted, or trailing blank. By enclosing significant characters (9, H, Z, X) in apostrophes, it is possible to use any characters as leading, insertion, or trailing characters. Insignificant edit mask characters need not be enclosed in apostrophes. Within the same edit mask notation, it is possible to have groups of leading, insertion, and/or trailing character strings, some of which are bounded by apostrophes and some of which are not.

## Trailing Sign Characters

A trailing sign character can be specified for numeric edit masks by using the + or - character as the last character in the edit mask. A + will produce a trailing + or - sign depending on the value of the field. A - will produce a trailing space or - sign depending on the value of the field. If a leading and trailing sign are specified in the edit mask, both will be produced.

## Examples of Numeric Edit Masks

The table below lists the results obtained from the original values shown at the top of each column as they are output without editing mask. All values used as column headings represent format N fields. The lines below the top column represent the formats obtained using the different editing masks:

Value	0000.03 (N4.2)	-0054 (N4)	+0087 (N4)	0962 (N4)	1830 (N4)
<b>Edit Mask</b>					
EM=9.9	0.0	4.	7.	2.	0.
EM=99	00	54	87	62	30
EM=S99	+00	-54	+87	+62	+30
EM=+Z9	+0	-54	+87	+62	+30
EM=-9.99	0.03	-4.	7.	2.	0.
EM=N9	0	-4	7	2	0
EM=*9.99	0.03	4.	7.	2.	0.
EM=Z99	00	54	87	962	830
EM=*EURZZ9.9	EUR**0.0	EUR*54.	EUR*87.	EUR962.	EUR830.
EM=999+	000+	054-	087+	962+	830+
EM=999-	000	054-	087	962	830
IC=\$ EM=ZZZ.99	\$.03	\$54.	\$87.	\$962.	\$830.
<b>EM=H(6)</b>					
- ASCII:	303030303033	30303574	30303837	30393632	31383330
- EBCDIC:	F0F0F0F0F0F3	F0F0F5D4	F0F0F8F7	F0F9F6F2	F1F8F3F0

By combining edit masks with the parameters IC and TC, negative numbers can be displayed in varying formats using a DISPLAY statement.

## Edit Masks for Alphanumeric Fields

An alphanumeric edit mask which is only to be used with A format fields must contain at least one X which represents a character to be displayed. An H as the first character designates a **hexadecimal edit mask**. A blank is represented by a (^) symbol. All other characters except closing parentheses are permissible including leading, trailing, and insertion characters. It is also possible to specify leading, insertion, or trailing characters enclosed within apostrophes. If the character X, a closing parenthesis, or a quotation mark is specified as an insertion character, it must be enclosed within apostrophes.

If leading characters are used before the first displayable position X of an alphanumeric edit mask, the first of these leading characters will not be displayed, but is used as filler character and replaces all leading blanks in the alphanumeric output field.

### Example:

```
DEFINE DATA LOCAL
1 #X (A4) INIT <' 34'>
END-DEFINE
WRITE #X (EM=*A:X:)
      6X #X (EM=*A:XX:)
      6X #X (EM=*A:XXX:)
      6X #X (EM=*A:XXXX:)
      6X #X (EM=1234XXXX5678)
END
```

### Output Produced:

```
A:*:      A:**:      A:**3:      A:**34:      23411345678
```

Trailing characters which immediately follow the last permissible print position will be displayed.

If the number of positions specified with the mask is smaller than the field length, the overhanging field content is not displayed.

If the number of positions specified with the mask is higher than the field length, the mask is truncated on the first overhanging position.

**Example:**

```

DEFINE DATA LOCAL
1 #TEXT (A4) INIT <'BLUE'>
END-DEFINE
WRITE #TEXT (EM=X-X-X)          /* 'B-L-U', 3 bytes of field only.
WRITE #TEXT (EM=X-X-X-X-X)     /* 'B-L-U-E-', with truncated mask.
END

```

**Example of Alphanumeric Edit Masks**

The following program lists the alphanumeric edit masks for a field that is defined with format/length A4 and contains the value BLUE.

```

** Example 'EMMASK1': Edit mask
*****
DEFINE DATA LOCAL
1 #TEXT (A4)
END-DEFINE
*
ASSIGN #TEXT = 'BLUE'
WRITE NOTITLE 'MASK 1:' 5X #TEXT (EM=X.X.X.X)
/             'MASK 2:' 5X #TEXT (EM=X^X^X^X)
/             'MASK 3:' 5X #TEXT (EM=X--X--X)
/             'MASK 4:' 5X #TEXT (EM=X-X-X-X-X-X)
/             'MASK 5:' 5X #TEXT (EM=X' 'X' 'X' 'X)
/             'MASK 6:' 5X #TEXT (EM=XX...XXX)
/             'MASK 7:' 5X #TEXT (EM=1234XXXX)
END

```

**Output of Program EMMASK1:**

```

MASK 1:    B.L.U.E
MASK 2:    B L U E
MASK 3:    B--L--U
MASK 4:    B-L-U-E-
MASK 5:    B L U E
MASK 6:    BL...UE
MASK 7:    234BLUE

```

---

## Edit Masks for Binary Fields - Format B

---

Edit masks for binary fields may be set using X or H notation. For binary fields, the X notation is supported as if H had been specified instead of X.

---

## Hexadecimal Edit Masks

---

If the character H is specified as the first character in an edit mask, the content of an alphanumeric or numeric field will be displayed in hexadecimal format. Each H represents two print positions that will occur for each byte in the source field. Characters other than H serve as insertion or trailing characters in the mask. The number of positions to be displayed will be adjusted to the length of the edit mask if the mask is shorter than the field. The length of the edit mask will be adjusted to the length of the field if the field length is shorter than the edit mask.

Insertion or trailing characters may be optionally specified bounded by apostrophes.

All fields displayed with a hexadecimal edit mask are treated as alphanumeric. Therefore, if the edit mask is shorter than the field to be edited, numeric or alphanumeric positions will be displayed from left to right disregarding any decimal separator positions.

If a hexadecimal edit mask is used as an input edit mask, every 0-9, a-f, A-F, blank and hex zero are accepted as a hex digit.



**Note:** Blank and hex zero are regarded as 0 and a lower-case letter (a-f) is regarded as an upper-case letter.

### Edit Mask Examples for Hexadecimal Fields:

The tables below list the hexadecimal edit masks with results obtained from the original fields and values shown above each column. All numeric values (-10, +10, 01) to which edit masks have been applied originated in fields defined with N2 format. The alphanumeric value AB originated from a field defined with format/length A2.

**ASCII:**

Value =>	AB	-10	+10	01
EM=HH	4142	3170	3130	3031
EM=H^H	41 42	31 70	31 30	30 31
EM=HH^H	4142	3170	3130	3031
EM=H-H	41-42	31-70	31-30	30-31
EM=H	41	31	31	30

**EBCDIC:**

Value =>	AB	-10	+10	01
EM=HH	C1C2	F1D0	F1F0	F0F1
EM=H:H	C1 C2	F1 D0	F1 F0	F0 F1
EM=HH:H	C1C2	F1D0	F1F0	F0F1
EM=H-H	C1-C2	F1-D0	F1-F0	F0-F1
EM=H	C1	F1	F1	F0

**Example Program Using Hexadecimal Edit Masks:**

```

** Example 'EMMASK2': Edit mask
*****
DEFINE DATA LOCAL
1 #TEXT1 (A2)
1 #TEXT2 (N2)
END-DEFINE
*
ASSIGN #TEXT1 = 'AB'
ASSIGN #TEXT2 = 10
*
WRITE NOTITLE
    'MASK (EM=HH) :' 18T #TEXT1 (EM=HH)      30T #TEXT2 (EM=HH)
  / 'MASK (EM=H^H) :' 18T #TEXT1 (EM=H^H)    30T #TEXT2 (EM=H^H)
  / 'MASK (EM=HH^H):' 18T #TEXT1 (EM=HH^H)   30T #TEXT2 (EM=HH^H)
  / 'MASK (EM=H-H) :' 18T #TEXT1 (EM=H-H)    30T #TEXT2 (EM=H-H)
  / 'MASK (EM=H)   :' 18T #TEXT1 (EM=H)      30T #TEXT2 (EM=H)
END
    
```

**Output of Program EMMASK2 (ASCII):**

```

MASK (EM=HH) : 4142      3130
MASK (EM=H^H) : 41 42    31 30
MASK (EM=HH^H) : 4142    3130
MASK (EM=H-H) : 41-42    31-30
MASK (EM=H)   : 41       31

```

#### Output of Program EMMASK2 (EBCDIC):

```

MASK (EM=HH) : C1C2      F1F0
MASK (EM=H^H) : C1 C2    F1 F0
MASK (EM=HH^H) : C1C2    F1F0
MASK (EM=H-H) : C1-C2    F1-F0
MASK (EM=H)   : C1       F1

```

## Edit Masks for Date and Time Fields - Formats D and T

In edit masks for fields which are defined with format D (date) or T (time), the characters described in the following sections can be specified.

- [Date - Format D, and Time - Format T](#)
- [Syntactical Restrictions for Date Characters](#)
- [Hints for Input Edit Mask](#)
- [Hints for Week Display \(WW or ZW\) in Output Edit Mask](#)
- [Time - Format T - only](#)
- [Examples of Date and Time Edit Masks](#)

### Date - Format D, and Time - Format T

Character	Usage
DD	Day.
ZD	Day, with zero suppression.
MM	Month.
ZM	Month, with zero suppression.
YYYY	Year, 4 digits (see the section <a href="#">Hints for Input Edit Mask</a> ).
YY	Year, 2 digits (see the section <a href="#">Hints for Input Edit Mask</a> ).
Y	Year, 1 digit. Must not be used for input fields.
WW	Number of week (see the sections <a href="#">Hints for Input Edit Mask</a> and <a href="#">Hints for Week Display in Output Edit Mask</a> ).
ZW	Number of week, with zero suppression (see the sections <a href="#">Hints for Input Edit Mask</a> and <a href="#">Hints for Week Display in Output Edit Mask</a> ).
JJJ	Julian day.
ZZJ	Julian day with zero suppression.

Character	Usage
NN . . . or N( <i>n</i> )	Name of day (language-dependent). The maximum length is determined by the number of Ns or by <i>n</i> . If the name is longer than the maximum length, it will be truncated; if it is shorter, the actual length of the name will be used.
0	Number of week day. The profile parameter <code>DTFORM</code> determines whether Monday or Sunday is considered the first day of the week. With <code>DTFORM=U</code> : (Sunday = 1, Monday = 2, etc.). With <code>DTFORM=other</code> : (Monday = 1, Tuesday = 2, etc.).
LL . . . or L( <i>n</i> )	Name of month (language-dependent). The maximum length is determined by the number of L characters or by <i>n</i> . If the name is longer than the maximum length, it will be truncated; if it is shorter, the actual length of the name will be used.
R	Year in Roman numerals (maximum 13 digits). Must not be used for input fields. The upper limit for displayable year values is 2887.

### Syntactical Restrictions for Date Characters

For *Input* and *Output* edit masks, you *may not* use the following:

text			characters		
month	with	month name	MM or ZM	with	LL or L( <i>n</i> )
day name	with	week day number	NN or N( <i>n</i> )	with	0

For *Input* edit masks, you *may not* use the following:

text			characters		
1-digit year	nor	a year in Roman numerals	Y	nor	R
Day	without	month or month name	DD or ZD	without	MM or ZM or LL or L( <i>n</i> )
Week	without	year	WW or ZW	without	YYYY or YY
Month	without	year	MM or ZM	without	YYYY or YY
Julian day	without	year	JJJ or ZZJ	without	YYYY or YY
Day name	without	week	NN or N( <i>n</i> )	without	WW or ZW
Week day number	without	week	0	without	WW or ZW
Julian day	with	month	JJJ or ZZJ	with	MM or ZM
Julian day	with	week	JJJ or ZZJ	with	WW or ZW
Month	with	week	MM or ZM	with	WW or ZW



## Hints for Input Edit Mask

The range of valid year values (YYYY) is 1582 - 2699. If the profile parameter `MAXYEAR` is set to 9999, the range of valid year values is 1582 - 9999.

If only year (YY or YYYY) but no month or day is specified within an input edit mask, the values for month and day will both be set to 01. If only year (YY or YYYY) and month (MM) but no day is specified within an input edit mask, the value for day will be set to 01.

If a 2-digits year (YY) is used, the century used to fill up the year representation is the current century by default. However, this does not apply when a Sliding or Fixed Window is set. For more details, refer to profile parameter `YSLW` in the *Parameter Reference* documentation.

If a week number (WW or ZW) but no number of week day (0) or name of day (NN . . .) is specified, the first day of the week is assumed.

## Hints for Week Display (WW or ZW) in Output Edit Mask

When `DTFORM=U` (USA format) is set, the week starts on Sunday; whereas for all other `DTFORM` settings the first weekday is Monday. Whether a week is week 52/53 of the old year or week 01 of the new year depends on which year contains more days of the week. In other words, if Thursday (Wednesday for `DTFORM=U`) of that week is in the previous year, the week belongs to the previous year; if it is in the next year, the week belongs to the next year.

If the number of week (WW or ZW) and a year representation (YYYY or YY or Y) is in the same edit mask, the display for year always corresponds to the week number, regardless of the year in the underlying date field.

### Example:

```
DEFINE DATA LOCAL
1 D (D)
END-DEFINE
MOVE EDITED '31-12-2003' TO D(EM=DD-MM-YYYY)
DISPLAY D(EM=DD-MM-YYYY_N(10)) D(EM=DD-MM-YYYY/WW)
END
```

Although the underlying date is the 31 Dec. 2003, when the week number WW is contained in the edit mask, it displays as:

```
D          D
-----
31-12-2003_Wednesday  31-12-2004/01
```

**Time - Format T - only**

Character	Usage
T	Tenths of a second.
SS	Seconds.
ZS	Seconds, with zero suppression.
II	Minutes.
ZI	Minutes, with zero suppression.
HH	Hours.
ZH	Hours, with zero suppression.
AP	AM/PM element.

**Examples of Date and Time Edit Masks**

```
** Example 'EMDATI': Edit mask for date and time variables
*****
*
WRITE NOTITLE
  'DATE INTERNAL :' *DATX (DF=L) /
  '                :' *DATX (EM=N(9)' 'ZW.'WEEK 'YYYY) /
  '                :' *DATX (EM=ZZJ'.DAY 'YYYY) /
  '    ROMAN      :' *DATX (EM=R) /
  '    AMERICAN  :' *DATX (EM=MM/DD/YYYY)      12X 'OR ' *DAT4U /
  '    JULIAN    :' *DATX (EM=YYYYJJJ)        15X 'OR ' *DAT4J /
  '    GREGORIAN:' *DATX (EM=ZD.'L(10)''YYYY) 5X 'OR ' *DATG ///
*
  'TIME INTERNAL :' *TIMX                      14X 'OR ' *TIME /
  '                :' *TIMX (EM=HH.II.SS.T) /
  '                :' *TIMX (EM=HH.II.SS' 'AP) /
  '                :' *TIMX (EM=HH)
END
```

Output of Program EMDATI:

```

DATE INTERNAL : 2005-01-12
               : Wednesday 2.WEEK 2005
               : 12.DAY 2005
  ROMAN       : MMV
  AMERICAN    : 01/12/2005          OR 01/12/2005
  JULIAN      : 2005012             OR 2005012
  GREGORIAN   : 12.January2005     OR 12January 2005

TIME INTERNAL : 16:04:14           OR 16:04:14.8
               : 16.04.14.8
               : 04.04.14 PM
               : 16

```

## Edit Masks for Logical Fields - Format L

For fields of format L (logical fields), edit masks can be defined as follows:

```
(EM=[false-string][true-string])
```

The *false-string* must not be longer than 31 characters.

### Example of Edit Masks for Logical Field

```

** Example 'EMLOGV': Edit mask for logical variables
*****
DEFINE DATA LOCAL
1 #SWITCH (L) INIT <true>
1 #INDEX (I1)
END-DEFINE
*
FOR #INDEX 1 5
  WRITE NOTITLE #SWITCH (EM=FALSE/TRUE) 5X 'INDEX =' #INDEX
  WRITE NOTITLE #SWITCH (EM=OFF/ON) 7X 'INDEX =' #INDEX
  IF #SWITCH
    MOVE FALSE TO #SWITCH
  ELSE
    MOVE TRUE TO #SWITCH
  END-IF
/*
  SKIP 1
END-FOR
END

```

Output of Program EMLOGV:

TRUE	INDEX =	1
ON	INDEX =	1
FALSE	INDEX =	2
OFF	INDEX =	2
TRUE	INDEX =	3
ON	INDEX =	3
FALSE	INDEX =	4
OFF	INDEX =	4
TRUE	INDEX =	5
ON	INDEX =	5

# 87

## EMFM - Edit Mask Free Mode

---

This Natural profile parameter is used to activate/deactivate the Edit Mask Free mode at session startup.

<b>Possible settings</b>	ON	Edit Mask Free Mode is activated.
	OFF	Edit Mask Free Mode is deactivated.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	Within a running Natural session, you may override this setting with the terminal control command %FM+ or %FM-.



### Notes:

1. The Edit Mask Free mode allows you to omit literals during input into a field with a numeric edit mask.
2. For additional information, see *Numeric Edit Mask Free Mode* in the INPUT statement description in the *Statements* documentation.



## 88

## EMU - Unicode Edit Mask

With this session parameter, you can specify a Unicode edit mask for an input and/or output field that is used in one of the statements listed in the following table under *Applicable statements*.

<b>Possible settings</b>	The syntax of the session parameter EMU is identical to that of the session parameter EM (see <i>EM Parameter Syntax</i> ). <b>Note:</b> See also <i>Unicode Edit Masks - EMU Parameter</i> in the <i>Programming Guide</i> .	
<b>Default setting</b>	none	
<b>Applicable statements</b>	DEFINE DATA DISPLAY INPUT PRINT WRITE MOVE EDITED PROCESS PAGE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	

**Notes:**

1. Edit masks which are defined with EMU are kept in Unicode format so that the content is independent of the installed system code page.
2. For further information and an example, see also *Unicode and Code Page Support in the Natural Programming Language, Session Parameters*, section EMU, ICU, LCU, TCU versus EM, IC, LC, TC.





# 89

## ENDBT - BACKOUT TRANSACTION at Session End

---

This Natural profile parameter determines whether or not an implicit `BACKOUT TRANSACTION` statement is to be issued at the end of the Natural session.

<b>Possible settings</b>	ON	Natural will issue an implicit <code>BACKOUT TRANSACTION</code> statement at session end.
	OFF	Natural will not issue an implicit <code>BACKOUT TRANSACTION</code> statement at session end.
	ETDB	Natural will issue an implicit <code>BACKOUT TRANSACTION</code> statement at session end only for the database specified with the profile parameter <code>ETDB</code> .
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

Other transaction processing related parameters: [ADAMODE](#) | [DBCLOSE](#) | [DBOPEN](#) | [ET](#) | [ETDB](#) | [ETEOP](#) | [ETIO](#) | [ETSYNC](#)



# 90

## ENDMSG - Display Session-End Message

---

This Natural profile parameter is used to suppress the display the default message NAT9995 that is displayed at the end of the Natural session to indicate that the Natural session has been ended normally.

<b>Possible settings</b>	ON	Message NAT9995 will be displayed at the end of the session.
	OFF	Message NAT9995 will not be displayed at the end of the session.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** If a session back-end program is defined with the profile parameter [PROGRAM](#), the ENDMSG profile parameter has no effect; the message text will then be passed to the back-end program in the parameter area and will not be displayed by Natural.



# 91 ES - Empty Line Suppression

---

With this session parameter, you can suppress the printing of empty lines generated by a DISPLAY or WRITE statement.

<b>Possible settings</b>	ON	A line resulting from a DISPLAY or WRITE statement which contains all blank values will not be printed.  <b>Note:</b> This setting is particularly useful when displaying arrays (for example, multiple-value fields or fields contained within a periodic group) to avoid printing a large number of empty lines.
	OFF	Empty line suppression is disabled.
<b>Default setting</b>	OFF	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT	
	DISPLAY WRITE	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. To achieve empty suppression for numeric values, the field must be specified with ZP=OFF and ES=ON in order to have null values printed as blanks. See also the session parameters IS and ZP.
2. See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.

**Example:**

```
DISPLAY (ES=ON) NAME CITY
```

# 92 ESCAPE - Ignore Terminal Commands %% and %.

---

This Natural profile parameter can be used to disable the terminal commands %% and %..

<b>Possible settings</b>	ON	Enables the use of terminal commands %% and %..
	OFF	The terminal commands %% and %.. will be ignored; that is, it will not be possible to leave the currently active Natural program or the Natural session respectively by entering %% or %..
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	





# 93

## ESIZE - Size of User-Buffer Extension Area

---

This Natural profile parameter sets the size of the user-buffer extension area. It determines the size of the Natural source area which is used by the Natural editors.

<b>Possible settings</b>	2 - 32767	Size of buffer extension area in KB. <b>Note:</b> In a runtime environment (where the editors are not used), you can only set a value smaller than the default setting.
<b>Default setting</b>	28	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

The user-buffer extension area contains:

- the source code of the Natural object to be compiled,
- the table of currently active PA/PF keys,
- other tables and work areas internally used by Natural.



### Notes:

1. In a production environment, Natural sources are not needed and the `ESIZE` value can therefore be reduced accordingly.
2. If this area is not large enough to contain the necessary information, the Natural error message NAT0886 is issued.



# 94 ET - Execution of END/BACKOUT TRANSACTION

## Statements

---

This Natural profile parameter specifies for which databases END TRANSACTION and BACKOUT TRANSACTION statements are to be executed.

<b>Possible settings</b>	ON	END TRANSACTION and BACKOUT TRANSACTION statements are executed for all databases which have been referenced since the beginning of the Natural session or since the last execution of an END TRANSACTION and BACKOUT TRANSACTION statement.
	OFF	END TRANSACTION and BACKOUT TRANSACTION statements are executed only for the databases affected by the transaction (and - if applicable - for the database to which transaction data are written).
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** Any updates to a database which are not executed under the control of Natural (that is, by native invocation of the database link routines) do not affect the Natural transaction logic.

Other transaction processing related parameters: [ADAMODE](#) | [DBCLOSE](#) | [DBOPEN](#) | [ENDBT](#) | [ETDB](#) | [ETEOP](#) | [ETIO](#) | [ETSYNC](#)



# 95

## ETA - Error Transaction Program

---

This Natural profile parameter provides the name of the program which receives control if an error condition is detected during Natural program execution.

<b>Possible settings</b>	1 to 8 characters	Program name for error transaction.
	' ' (blank)	With ETA=' ', no error transaction program is called.
<b>Default setting</b>	' ' (blank)	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Application programming interface</b>	USR1041N	USR1041N is a sample error transaction program delivered in source form. See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. The setting of this parameter can be modified by a user program by way of assignment to the system variable \*ERROR-TA or, if Natural Security is installed, within the Natural Security library profile; see *Components of a Library Profile* in the *Natural Security* documentation.
2. For further information, see *Using an Error Transaction Program* in the *Programming Guide*.



# 96

## ETDB - Database for Transaction Data

---

This Natural profile parameter specifies the database in which transaction data, as supplied with an `END TRANSACTION` statement is to be stored.

<b>Possible settings</b>	1 - 65535, except 255	Database ID.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see profile parameter <a href="#">LFILE</a> .
	0	The transaction data is written to the database where the Natural Security system file (FSEC) is located. If <a href="#">FSEC</a> is not specified, it is considered to be identical to the Natural system file FNAT (if Natural Security is not installed, the transaction data are written to the database where FNAT is located).
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

Other transaction processing related parameters: [ADAMODE](#) | [DBCLOSE](#) | [DBOPEN](#) | [ENDBT](#) | [ET](#) | [ETEOP](#) | [ETIO](#) | [ETSYNC](#)





# 97

## ETEOP - Issue END TRANSACTION at End of Program

---

This Natural profile parameter determines whether or not an implicit `END TRANSACTION` statement is to be issued at the end of a Natural program (that is, before `NEXT` mode is reached).

<b>Possible settings</b>	ON	Natural will issue an implicit <code>END TRANSACTION</code> statement at the end of a Natural program.
	OFF	Natural will not issue any implicit <code>END TRANSACTION</code> statement at the end of a Natural program.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

Other transaction processing related parameters: [ADAMODE](#) | [DBCLOSE](#) | [DBOPEN](#) | [ENDBT](#) | [ET](#) | [ETDB](#) | [ETIO](#) | [ETSYNC](#)



# 98

## ETID - Adabas User Identification

This Natural profile parameter is used as an identifier for Adabas-related information; for example, for identification of data stored as a result of an `END TRANSACTION` statement.

<b>Possible settings</b>	1 - 8 characters	The setting is used as the user ID setting in an Adabas open call.
	OFF	Natural does not issue any Adabas open and close commands at the beginning of the Natural session. If, however, any <code>ETID</code> and/or <code>OPRB</code> specifications are present in Natural Security, these specifications are used in the subsequent open issued by Natural Security. This parameter setting is provided for use in conjunction with Natural Security to prevent Natural batch jobs that are sent at the same time from causing duplicate user ID settings in an Adabas open call during the initialization phase.
	' ' (blank)	If the <code>ETID</code> parameter is set to blanks, Natural does not issue any Adabas open and close commands; the <code>OPRB</code> parameter (if specified) and any <code>ETID</code> and <code>OPRB</code> specifications in Natural Security are ignored. In this case, you are recommended to set the Natural profile parameter <code>DBCLOSE</code> to <code>ON</code> to enforce a close command at session end. Otherwise, the user is not logged off from Adabas and the Adabas user queue element is not deleted. This may cause an overflow situation in the Adabas user queue.
<b>Default setting</b>	*INIT-USER	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If the `ETID` setting is *not* the same as the setting of the Natural system variable `*INIT-USER`, Natural issues an Adabas open with the specified `ETID` setting (and `OPRB` setting, if specified) at the beginning of the Natural session; this open remains in effect until the end of the Natural session; any `ETID` and `OPRB` specifications in Natural Security are ignored.

2. If the ETID setting is the same as the setting of \*INIT-USER, or if the ETID parameter is not specified, Natural issues an Adabas open with the \*INIT-USER setting as ETID (and the OPRB setting, if specified) at the beginning of the Natural session. If any Natural Security logon (initial logon or any subsequent logon) would change the currently valid ETID or OPRB setting (due to the library-/user-specific ETID and OPRB specifications in Natural Security), Natural Security issues a new open with the new ETID and OPRB settings. If the settings would remain the same after a logon, Natural Security does not issue a new open.
3. ETID and \*INIT-USER can be modified by user exit NATUEX1 during session startup. See *NATUEX1 - User Exit for Authorization Control* in the *Operations* documentation.
4. For further ETID options available with ETID=OFF which can be set in Natural Security, see *Library and User Preset Values* in the *Natural Security* documentation.

# 99

## ETIO - Issue END TRANSACTION upon Terminal I/O

This Natural profile parameter determines whether or not implicit END TRANSACTION statements are to be issued upon terminal I/Os.

<b>Possible settings</b>	ON	Natural will issue an implicit END TRANSACTION statement whenever a terminal I/O occurs.  <b>Note:</b>  1. Whenever a transaction monitor commits the associated databases because of a terminal I/O, all related databases are also committed. This is useful for the synchronization of database transactions.  2. Natural add-on products (except for Natural Security) may not function correctly with ETIO=ON.
	OFF	Natural will issue no implicit END TRANSACTION statements upon terminal I/Os.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

Other transaction processing related parameters: [ADAMODE](#) | [DBCLOSE](#) | [DBOPEN](#) | [ENDBT](#) | [ET](#) | [ETDB](#) | [ETEOP](#) | [ETSYNC](#)



# 100

## ETPSIZE - Size of Entire Transaction Propagator Buffer

---

This Natural profile parameter determines the size of the Entire Transaction Propagator buffer.

<b>Possible settings</b>	10 - 128	Size of the Entire Transaction Propagator buffer in KB.  <b>Note:</b>  1. If Entire Transaction Propagator is to be used, an appropriate value has to be specified for this parameter; see the <i>Entire Transaction Propagator</i> documentation.  2. If the requested space is not available, the Entire Transaction Propagator cannot be used.
	0	Entire Transaction Propagator is not used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies if Entire Transaction Propagator is installed.
2. Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.





# 101

## ETTRACE - External Trace Function

This Natural profile parameter is used to activate/deactivate the (normal) external trace function or the Generalized Trace Facility (GTF) offered under z/OS and TSO.



**Caution:** Do not use this parameter without prior consultation of Software AG Support.

<b>Possible settings</b>	ON	Activates the (normal) external trace function.
	OFF	Deactivates the (normal) external trace function.
	(ON , GTF) (OFF , GTF)	Activates/deactivates the Generalized Trace Facility (GTF). The trace records are written to the GTF.
	(ON , NOGTF) (OFF , NOGTF)	Activates/deactivates the (normal) external trace function.
	( , GTF)	Equivalent to ETRACE=GTF. Trace data is written to the GTF. ON or OFF is not altered.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	Within a Natural session, the terminal command %TRE can be used to activate/deactivate the external trace function, except GTF.



### Notes:

1. The trace function is intended primarily for Software AG internal use for debugging purposes. It writes trace data to an external trace data set depending on the TP environment in which Natural is running.
2. In batch and TSO environments, a data set is required for the external trace (see also *CMTRACE - Optional Report Output for Natural Tracing* in the *Operations* documentation).



# 102 ETSYNC - Issue Syncpoint upon End of Transaction/Backout Transaction

---

This Natural profile parameter determines whether or not an implicit syncpoint is issued whenever an `END TRANSACTION` or `BACKOUT TRANSACTION` statement is to be issued.

<b>Possible settings</b>	ON	Natural issues an implicit syncpoint <code>COMMIT</code> whenever an <code>END TRANSACTION</code> statement is to be issued.  Natural issues an implicit syncpoint <code>ROLLBACK</code> whenever a <code>BACKOUT TRANSACTION</code> statement is to be issued.  This is useful for the synchronization of database transactions that are performed from within 3GL programs.
	OFF	Natural does not issue an implicit syncpoint when an <code>END TRANSACTION</code> or <code>BACKOUT TRANSACTION</code> statement is to be issued.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

## Notes:

To issue syncpoints, Natural uses

- Resource Recovery Services (RRS) under TSO and in batch mode to commit or rollback the unit of recovery,
- CICS commands `SYNCPOINT` and `SYNCPOINT ROLLBACK` under CICS,
- system service calls `CHECKPOINT (CHKP)` and `ROLLBACK (ROLB)` under IMS TM.

The processing sequence is as follows:

- an `END TRANSACTION / BACKOUT TRANSACTION` statement is issued to the database specified with the profile parameter `ETDB`,
- the syncpoint `COMMIT / ROLLBACK` is issued,
- `END TRANSACTION` or `BACKOUT TRANSACTION` statements are issued to the remaining databases.

### Restrictions and Limitations:

- This functionality is available under the z/OS operating system
  - in batch mode,
  - under the TP monitor CICS,
  - under the TP monitor TSO,
  - under the TP monitor IMS TM in a non-message driven BMP (in all other environments under IMS TM, only a `ROLLBACK` is executed, but no `CHECKPOINT`).
- To synchronize Adabas transactions, the Adabas Transaction Manager (ATM) must be installed.
- For transactions in batch mode or under TSO that update data stored in a DB2 database, you must configure Natural for DB2 and/or your 3GL application to use the RRSAF interface.
- For transactions in batch mode that update data stored in a DL/I database, Resource Recovery Services are not supported due to a DL/I restriction. If, additionally, data stored in a DB2 database is updated in the same transaction, synchronization is performed by means of the DL/I synchronization mechanism.

As a consequence, if data stored in an Adabas database is updated in addition to data stored in DB2 and DL/I databases, no synchronization is possible, not even if the Adabas Transaction Manager is installed.

Other transaction processing related parameters: `ADAMODE` | `DBCLOSE` | `DBOPEN` | `ENDBT` | `ET` | `ETDB` | `ETEOP` | `ETIO`

# 103

## EXCSIZE - Size of Buffer for Natural Expert C Interface

---

This Natural profile parameter is obsolete and only accepted for compatibility reasons.



# 104

## EXRSIZE - Size of Buffer for Natural Expert Rule Tables

---

This Natural profile parameter is obsolete and only accepted for compatibility reasons.





# 105

## FAMSTD - Overwriting of Print and Work File Access

### Method Assignments

---

This Natural profile parameter controls the automatic overwriting of print and work file access method assignments during session initialization according to the data set definition in the job control.



**Note:** See also the AM subparameter of the macros [NTPRINT](#) and [NTWORK](#).

<b>Possible settings</b>	ON	All print and work file data sets are automatically assigned to the batch access method AM=STD if the logical data set name (defined by the DEST subparameter) is defined by job control.
	OFF	Automatic print and work file assignment to AM=STD is done only if the file is not assigned to another access method; for example, AM=NAF.  <b>Note:</b> If AM=OFF is specified, no automatic assignment is done. Specify AM=0 if you want to reset the access method type and to allow automatic assignment.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 106

## FC - Filler Character for INPUT Statement

---

This Natural profile parameter is used to specify the default filler character to be used for fields displayed by an `INPUT` statement.

<b>Possible settings</b>	any character	Default filler character.
<b>Default setting</b>	X'00'	For TTY, web I/O (with the Natural Web I/O Interface) or batch mode, the default setting is X'40', i.e. blank in hexadecimal format.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. The default filler character is used to pre-fill non-protected input fields (field attribute specification `AD=A`) when fields are written to a terminal by an `INPUT` statement.
2. For modifiable input fields (field attribute specification `AD=M`), it is used to fill the rest of the field.



# 107

## FC - Filler Character for DISPLAY Statement

---

With this session parameter, you specify the filler character which will appear on either side of a heading produced by a `DISPLAY` statement across the full column width.

<b>Possible settings</b>	any character	Filler character for individual headings.
<b>Default setting</b>	blank	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT	
<b>Applicable command</b>	none	



### Notes:

1. `FC` only applies if the column width is determined by the field length and not by the header (see also session parameter `HW`); otherwise the `FC` setting will be ignored.
2. Unlike the `GC` parameter, which applies to headings across a group of columns, the `FC` parameter applies to individual columns.

### Example:

```
DISPLAY (FC=*)
```

---

# 108

## FCDP - Filler Character for Dynamically Protected Input

### Fields

---

This Natural profile and session parameter can be used to suppress the display of filler characters for input fields that have been made write-protected dynamically (that is, to which the attribute AD=P has been assigned via an attribute control variable).

<b>Possible settings</b>	ON	Dynamically protected input fields are displayed filled with filler characters. This may suggest to the users that they could enter something in the fields.
	OFF	Dynamically protected input fields are displayed filled with blanks.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



#### Notes:

1. Depending on the setting of the FCDP parameter, dynamically protected input fields are displayed filled either with blanks or with the defined filler characters.
2. Within a Natural session, the profile parameter FCDP can be overridden by the session parameter FCDP.

**Example:**

```

DEFINE DATA LOCAL
  1 #FIELD1 (A5)
  1 #FIELD2 (A5)
  1 #CVAR1 (C) INIT <(AD=P)>
  1 #CVAR2 (C)
END-DEFINE
*
INPUT #FIELD1 (AD=Y'_' CV=#CVAR1) /* field is protected
      #FIELD2 (AD=Y'_' CV=#CVAR2) /* field is not protected
...
END

```

Execution of the above program will display the following:

FCDP=ON:

#FIELD1 \_\_\_\_\_ #FIELD2 \_\_\_\_\_

FCDP=OFF:

#FIELD1            #FIELD2 \_\_\_\_\_



# 109

## FDIC - Predict System File

---

This Natural profile parameter defines the database ID, file number, password, cipher key and read-only flag for the Predict system file (FDIC), which Predict uses to retrieve and/or store data.

<b>Possible settings</b>	See <i>FDIC Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	If you specify the FDIC parameter dynamically in conjunction with any of the parameters <i>DBID</i> , <i>FNR</i> , <i>SYSPSW</i> and <i>SYSCIP</i> , you must specify the FDIC parameter <i>after</i> any of these other parameters.
<b>Specification within session</b>	no	



### Notes:

1. In a remote development environment, a Development Server File is used instead, see the *SPoD - Natural's Single Point of Development* and the *Natural Development Server* documentation.
2. For information on system files, refer to *Natural System Files* in the *Natural System Architecture* documentation.


### FDIC Parameter Syntax

The parameter syntax is as follows:

```
FDIC=(database-ID,file-number,password,cipher-key,RO)
```

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1 - 65535, except 255	Database identification of the database in which the Predict system file is located.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1 - 65535	File number of the database file in which the Predict system file is located.
<i>password</i>	1 - 8 characters	Password for the Predict system file.  <b>Note:</b>  1. A password is only required if the Predict system file has been password-protected using the Adabas security feature. 2. When Natural is used with VSAM system files, the password is used to specify the logical name (DD or DLBL) of the system file as defined to VSAM. Example: FDIC=(10,5,SYSVSAM)
<i>cipher-key</i>	1 - 8 numeric characters	Cipher key for the Predict system file.  <b>Note:</b> A cipher key is only required if the Predict system file has been ciphered using the Adabas security feature.
RO	-	Read-only option.  <b>Note:</b> RO indicates that the Predict system file is “read-only” and is only specified if modifications on the file are to be disabled.

 **Note: Default values:** If any subparameter of the FDIC setting is not specified, the corresponding setting of the profile parameter [DBID](#), [FNR](#), [SYSPSW](#) or [SYSCIP](#) applies for the Predict system file.

**Examples:**

```
FDIC=(10,5,PASSW1,12345678)
FDIC=(1,200,,12345678)
FDIC=(1,5)
FDIC=(,5)
```

# 110

## FL - Floating Point Mantissa Length

---

With this session parameter, you specify the mantissa length of a floating point variable during input or output.

<b>Possible settings</b>	1 - 16	Mantissa length. <b>Note:</b> The total length is FL + 6 for sign, exponent, and decimal character.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT INPUT PRINT WRITE	
<b>Applicable command</b>	none	

### Example:

```
DISPLAY FL=5 -> +1.2345E+03
```



# 111

## FNAT - Natural System File for System Programs

---

This Natural profile parameter defines the database ID, file number, password, cipher key and read-only flag for the Natural system file for Natural system programs (FNAT).

<b>Possible settings</b>	See <i>FNAT Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the FNAT parameter dynamically in conjunction with any of the profile parameters <i>DBID</i> , <i>FNR</i> , <i>SYSPSW</i> , <i>SYSCIP</i> or <i>ROSY</i> , you must specify the FNAT parameter <i>after</i> any of these parameters.
<b>Specification within session</b>	no	



### Notes:

1. The Natural system file is the database file from which all Natural system programs are retrieved and upon which all system commands operate. Error texts and Natural help information are also contained in this system file.
2. For information on system files, refer to *Natural System Files* in the *Natural System Architecture* documentation.

### FNAT Parameter Syntax

The parameter syntax is as follows:

```
FNAT=(database-ID,file-number,password,cipher-key,RO)
```

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1 - 65535, except 255	Database identification of the database in which the Natural system file is located.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1 - 65535	File number of the database file in which the Natural system file is located.
<i>password</i>	1 - 8 characters	Password for the Natural system file.  <b>Note:</b>  1. A password is only required if the Natural system file has been password-protected using the Adabas security feature. 2. When Natural is used with VSAM system files, the password is used to specify the logical name (DD or DLBL) of the system file as defined to VSAM. Example: FNAT=(22, 5, SYSVSAM)
<i>cipher-key</i>	8 numeric characters	Cipher key for the Natural system file.  <b>Note:</b> A cipher key is only required if the Natural system file has been ciphered using the Adabas security feature.
RO	-	Read-only option.  <b>Note:</b>  1. RO indicates that the Natural system file is “read-only”. 2. RO is only specified if modifications on the file are to be disabled.



**Notes:**

- Default values:** If any subparameter of the FNAT setting is not specified, the corresponding setting of the profile parameter [DBID](#), [FNR](#), [SYSPSW](#), [SYSCIP](#) or [ROSY](#) applies for the Natural system file for system programs.
- If you reorganize an FNAT file or if you unload/load data from/to the FNAT file (for example, by using [ADAULD/ADALOD](#)), you must specify [USERISN=YES](#) for the [ADALOD](#) utility.

**Examples:**

```
FNAT=(,8)  
FNAT=(22,5,PASSW2)
```





# 112

## FNR - Default File Number of Natural System Files

This Natural profile parameter identifies the default number of the database file in which the Natural system files (FNAT, FUSER, FDIC, FSEC, FSPPOOL, FPROF, FREG) are located.

<b>Possible settings</b>	1 - 65535	Default file number.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the profile parameter FNR dynamically in conjunction with any of the individual profile parameters which define the system files (FNAT, FUSER, FDIC, FSEC, FSPPOOL, FPROF, FREG), you must specify the FNR parameter <i>before</i> any individual system file parameter.
<b>Specification within session</b>	yes	



### Notes:

1. The default file number applies to all Natural system files for which no individual database file numbers are specified.
2. File numbers for individual system files can be specified with the *file-number* subparameter of the profile parameters FNAT, FUSER, FDIC, FSEC, FSPPOOL, FPROF and FREG.

### Examples:

#### Example 1:

```
FNR=5, DBID=10, FUSER=(, 8)
```

This example assigns the user-program system file to File 8 on Database 10. All other system files are assigned to File 5 on Database 10.

#### Example 2:

```
FUSER=(, 8), FNR=5, DBID=10
```

This example assigns all system files to File 5 on Database 10.

# 113

## FPROF - Natural System File for Parameter Profiles

---

This Natural profile parameter can be used to specify a system file for parameter profiles (FPROF).

<b>Possible settings</b>	See <i>FPROF Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the profile parameter FPROF dynamically in conjunction with any of the profile parameters DBID, FNR, SYSPSW or SYSCIP, you must specify the FPROF parameter <i>after</i> any of these parameters.
<b>Specification within session</b>	no	



### Notes:

1. The system file FPROF is used to read parameter profiles specified by the profile parameter PROFILE, provided no database information is supplied as subparameter of PROFILE.
2. If FPROF is not defined, the system file FNAT is used as the system file for parameter profiles.
3. Parameter profiles can be maintained with the SYSPARM utility.
4. For information on system files, refer to *Natural System Files* in the *Natural System Architecture* documentation.

### FPROF Parameter Syntax

The parameter syntax is as follows:

FPROF=(*database-ID*,*file-number*,*password*,*cipher-key*,RO)

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1 - 65535, except 255	Database identification of the database in which the Natural system file for parameter profiles is located.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1 - 65535	File number of the database file in which the Natural system file for parameter profiles is located.
<i>password</i>	1 - 8 characters	Password for the Natural system file FPROF.  <b>Note:</b>  1. A password is only required if the Natural system file for parameter profiles has been password-protected using the Adabas security feature. 2. When Natural is used with VSAM system files, the password is used to specify the logical name (DD or DLBL) of the system file as defined to VSAM. Example: FPROF=(10, 33, SYSVSAM)
<i>cipher-key</i>	8 characters	Cipher key for the Natural system file FPROF.  <b>Note:</b> A cipher key is only required if the Natural system file for parameter profiles has been ciphered using the Adabas security feature.
RO	-	Read-only option.  <b>Note:</b>  1. RO indicates that the Natural system file for parameter profiles is "read-only". 2. RO is only specified if modifications on the system file for parameter profiles are to be disabled. This would mean, for example, that no profiles could be stored on this file by means of the SYSPARM utility.



**Note: Default values:** If any subparameter of profile parameter FPROF is not specified, the corresponding setting of the profile parameter [DBID](#), [FNR](#), [SYSPSW](#) or [SYSCIP](#) applies to the system file for parameter profiles.

**Example:**

```
FPROF=(10,56)
```

In this example, the system file `FPROF` is located on database file 56 in database 10.



# 114

## FREEGDA - Release GDA in Utility Mode

---

This Natural profile parameter controls whether current user global data area (GDA) and application-independent variables (AIV) are to be reset or not when a utility is invoked in utility mode (see *Utility Activation* in the *Utilities* documentation), that is, by using the direct command that corresponds to the utility's name.

<b>Possible settings</b>	ON	The current user GDA and AIV variables are reset before a utility is started.  <b>Note:</b> This behavior corresponds to the previous situation when the utility was invoked using the system command <code>LOGON library-name</code> .
	OFF	The current user GDA and AIV variables are preserved when a utility is started.  <b>Note:</b> This will increase the data size correspondingly and may lead to thread problems under certain operating systems.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	





# 115

## FREG - Natural Registry System File

This Natural profile parameter is used to specify the database ID, file number, password and cipher key for the Natural Registry system file.

The Natural Registry system file is the database file which is used to store the registry information for Natural sessions which are started with a value > 0 for the Natural profile parameter [UCONMAX](#).

<b>Possible settings</b>	See <a href="#">FREG Parameter Syntax</a> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the FREG parameter dynamically in conjunction with any of the parameters <a href="#">DBID</a> , <a href="#">FNR</a> , <a href="#">SYSPSW</a> or <a href="#">SYSCIP</a> , you must specify the FREG parameter <i>after</i> any of these other parameters.
<b>Specification within session</b>	no	

### FREG Parameter Syntax

The FREG parameter syntax is as follows:

```
FREG=(database-ID,file-number,password,cipher-key)
```

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1-65535, except 255	Database identification of the database in which the Natural Registry system file is located.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1-65535	File number of the database file in which the Natural Registry system file is located.

Syntax Element	Value	Explanation
<i>password</i>	1 - 8 characters	<p>Password for the Natural Registry system file.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. A password is only required if the Natural Registry system file has been password-protected using the Adabas security feature.</li> <li>2. For Natural with VSAM system files, the password is used to specify the logical name (DD or DLBL) of the system file as defined to VSAM. Example: FNAT=( 22 , 5 , SYSVSAM).</li> </ol>
<i>cipher-key</i>	8 numeric characters	<p>Cipher key for the Natural Registry system file.</p> <p><b>Note:</b> A cipher key is only required if the Natural Registry system file has been ciphered using the Adabas security feature.</p>



**Notes:**

1. If any subparameter of the FREG setting is not specified, the corresponding setting of the parameter DBID, FNR, SYSPSW or SYSCIP applies for the Natural Registry system file.
2. The FREG system file must not reside on a read-only database.
3. If the FREG system file is not declared, Natural will use the FSEC system file for session registration. If in addition the FSEC system file is also not declared, Natural will use the FNAT system file for session registration.

**Examples:**

```
FREG=( , 8)
FREG=( 22 , 5 , PASSW2 )
```

# 116

## FS - Default Format/Length Setting for User-Defined

### Variables

---

This Natural profile and session parameter determines whether a default format/length setting is to be in effect for the definition of user-defined variables in reporting mode.



**Note:** See also *Format and Length of User-Defined Variables* in the *Programming Guide*.

<b>Possible settings</b>	ON	No default format/length is assigned by Natural for a newly introduced variable in reporting mode.  <b>Note:</b> The format/length of all user-defined variables must be explicitly specified.
	OFF	A user-defined variable in a Natural program for which no format/length is specified is assigned the default format/length N7.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



#### Notes:

1. This Natural profile and session parameter only applies to reporting mode; it has no effect in structured mode.
2. Within a Natural session, the profile parameter FS can be overridden by the session parameter FS.

3. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.

# 117

## FSEC - Natural Security System File

---

This Natural profile parameter defines the database ID, file number, password, cipher key and read-only flag for the Natural Security system file (FSEC), which is used by Natural Security to retrieve/store its security information.

<b>Possible settings</b>	See <i>FSEC Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the FSEC parameter dynamically in conjunction with any of the parameters <i>DBID</i> , <i>FNR</i> , <i>SYSPSW</i> , <i>SYSCIP</i> or <i>ROSY</i> , you must specify the FSEC parameter <i>after</i> any of these other parameters.
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies if Natural Security is used.
2. For information on system files, refer to *Natural System Files* in the *Natural System Architecture* documentation.

### FSEC Parameter Syntax

The FSEC parameter syntax is as follows:

```
FSEC=(database-ID,file-number,password,cipher-key,RO)
```

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1-65535, except 255	Database identification of the database in which the Natural Security system file is located.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1-65535	File number of the database file in which the Natural Security system file is located.
<i>password</i>	1 - 8 characters	Password for the Natural Security system file.  <b>Note:</b> A password is only required if the Natural Security system file has been password-protected using the Adabas security feature.
<i>cipher-key</i>	8 numeric characters	Cipher key for the Natural Security system file.  <b>Note:</b> A cipher key is only required if the Natural Security system file has been ciphered using the Adabas security feature.
RO	-	Read-only option.  <b>Note:</b>  1. RO indicates that the Natural Security system file is “read-only”. 2. RO is only specified if modifications on the Natural Security system file are to be disabled.



**Note: Default values:** If any subparameter of profile parameter FSEC is not specified, the corresponding setting of profile parameter [DBID](#), [FNR](#), [SYSPSW](#), [SYSCIP](#) or [ROSY](#) applies to the Natural Security system file.

**Example:**

FSEC=(10,8)

# 118

## FSIZE (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.





# 119

## FSPPOOL - Natural Advanced Facilities Spool File

---

This Natural profile parameter defines the database ID, file number, password, cipher key and read-only flag for the Natural Advanced Facilities spool file.

<b>Possible settings</b>	See <i>FSPPOOL Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the FSPPOOL parameter dynamically in conjunction with any of the parameters <i>DBID</i> , <i>FNR</i> , <i>SYSPSW</i> , or <i>SYSCIP</i> , you must specify the <i>FSEC</i> parameter <i>after</i> any of these other parameters.
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to Natural Advanced Facilities.
2. The spool file is the database file that is used by Natural Advanced Facilities.
3. The spool file must be different from the *FNAT*, *FUSER*, *FDIC*, *FSEC* and *FPROF* system files.
4. For information on system files, refer to *Natural System Files* in the *Natural System Architecture* documentation.

### FSPPOOL Parameter Syntax

The FSPPOOL parameter syntax is as follows:

FSPPOOL=(*database-ID,file-number,password,cipher-key,RO*)

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1-65535, except 255	Database identification of the database in which the spool file is located. <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1-65535	File number of the database file in which the spool file is located.
<i>password</i>	1 - 8 characters	Password for the spool system file. <b>Note:</b> <ol style="list-style-type: none"> <li>1. A password is only required if the spool file has been password-protected using the Adabas security feature.</li> <li>2. When Natural is used with VSAM system files, the password is used to specify the logical name (DD or DLBL) of the system file as defined to VSAM. Example: FSPPOOL=(10,8,SYSVSAM)</li> </ol>
<i>cipher-key</i>	8 numeric characters	Cipher key for the spool file. <b>Note:</b> A cipher key is only required if the Natural Security system file has been ciphered using the Adabas security feature.
RO	-	Read-only option. <b>Note:</b> <ol style="list-style-type: none"> <li>1. RO indicates that the spool file is “read-only”.</li> <li>2. RO is only specified if modifications on the spool file are to be disabled. This would mean, for example, that no reports could be stored on the spool file.</li> </ol>

**Example:**

FSPPOOL=(10,8)

# 120

## FUSER - Natural System File for User Programs

---

This Natural profile parameter defines the database ID, file number, password, cipher key and read-only flag for the Natural user-program system file (FUSER).

<b>Possible settings</b>	See <i>FUSER Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the FUSER parameter dynamically in conjunction with any of the parameters <i>DBID</i> , <i>FNR</i> , <i>SYSPSW</i> , <i>SYSCIP</i> or <i>ROSY</i> , you must specify the FUSER parameter <i>after</i> any of these parameters.
<b>Specification within session</b>	no	



### Notes:

1. The Natural user-program system file (FUSER) is the database file from which all user-written Natural programs are retrieved.
2. For information on system files, refer to *System Files* in the *Natural System Architecture* documentation.


### FUSER Parameter Syntax

The FUSER parameter syntax is as follows:

```
FUSER=(database-ID,file-number,password,cipher-key,RO)
```

Where:

Syntax Element	Value	Explanation
<i>database-ID</i>	1- 65535, except 255	Database identification of the database in which the Natural user-program system file is located.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see Natural profile parameter <a href="#">LFILE</a> .
<i>file-number</i>	1-65535	File number of the database file in which the Natural user-program system file is located.
<i>password</i>	1 to 8 characters	Password for the Natural user-program system file.  <b>Note:</b>  1. A password is only required if the Natural user-program system file has been password-protected using the Adabas security feature. 2. When Natural is used with VSAM system files, the password is used to specify the logical name (DD or DLBL) of the system file as defined to VSAM. Example: FUSER=(22,5,SYSVSAM)
<i>cipher-key</i>	8 numeric characters	Cipher key for the Natural user-program system file.  <b>Note:</b> A cipher key is only required if the Natural user-program system file has been ciphered using the Adabas security feature.
RO	-	Read-only option.  <b>Note:</b>  1. RO indicates that the Natural user-program system file is “read-only”. 2. RO is only specified if modifications on the Natural user-program system file are to be disabled.

 **Note:** If any subparameter of the FUSER setting is not specified, the corresponding setting of the parameter [DBID](#), [FNR](#), [SYSPSW](#), [SYSCIP](#) or [ROSY](#) applies for the Natural user-program system file.

**Examples:**

FUSER=(,8) FUSER=(22,5,PASSW2)

# 121

## GC - Filler Character for Group Headers

---

With this session parameter, you specify the filler character which will appear on either side of a group heading produced by a `DISPLAY` statement across all field columns that belong to that group.

<b>Possible settings</b>	any character	Filler character for group headers.
<b>Default setting</b>	blank	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT	
<b>Applicable command</b>	none	



**Note:** Unlike the `FC` parameter, which applies to individual columns, the `GC` parameter applies to headings across a group of columns.

### Example:

```
DISPLAY (GC=*)
```



# 122

## HC - Header Centering

---

This session parameter determines the placement of column headers.

<b>Possible settings</b>	C	Headers will be centered.
	L	Headers will be left-justified.
	R	Headers will be right-justified.
<b>Default setting</b>	C	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT	
<b>Applicable command</b>	none	

### Example:

```
DISPLAY (HC=L)
```

---





# 123

## HCAM - Hardcopy Access Method

This Natural profile parameter determines which access method is to be used for hardcopy output processing.

<b>Possible settings</b>	With <code>HCAM=value</code> , you can specify one of the following access-method names:	
	<b>Value:</b>	<b>Access Method:</b>
	STD	Standard sequential file (batch, TSO, TIAM).
	COMP	Com-plete print file.
	CICS	CICS transient data or temporary storage.
	IMS	IMS TM printer.
	NAF	Natural Advanced Facilities.
	USER	Third-party vendor print interface.
	SMARTS	SMARTS print file.
	ESS	Entire System Server.
	ANY	Hardcopy output processing will be handled by the first access method available (the search sequence for available access methods is the sequence in which the access methods are listed here).
	OFF	Hardcopy output processing will not be handled by any access method.
<b>Default setting</b>	ANY	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Notes:**

1. `HCAM=value` is equivalent to the `AM` subparameter of the profile parameter `PRINT` for Print File 0, that is, `PRINT=((0),AM=xxx)`.
2. The hardcopy output destination is specified using the profile parameter `HCDEST`. More specifications for the hardcopy output file can be made using the `PRINT` profile parameter or the `NTPRINT` macro for Printer 0.
3. Under BS2000/OSD, `HCAM=STD` is a necessary setting for routing hardcopy output to standard print files.

# 124

## HCDEST - Hardcopy Output Destination

This Natural profile parameter presets the hardcopy output destination for the terminal command %H (without the *destination* operand).

<b>Possible settings</b>	1 - 8 characters	Valid hardcopy output destination.
	blank	
<b>Default setting</b>	blank	<b>Note:</b> In some environments, a default destination may be supplied by the operating system or TP monitor. If <b>HCAM=STD</b> is assigned for hardcopy, the default hardcopy output destination is the data set CMHCOPY.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	<b>Note:</b> The hardcopy output destination can be overwritten during the session by specifying %H <i>destination</i> ; see also the terminal command %H.



### Notes:

1. HCDEST=*value* is equivalent to the DEST subparameter of the profile parameter PRINT for Print File 0, that is, PRINT=((0),DEST=*value*).
2. If you are running Natural under TSO or in batch mode, the data set must be defined in the JCL or by dynamic allocation.
3. Under TSO, the hardcopy data set specified by HCDEST is closed after %H at the next terminal I/O. The default CMHCOPY data set is closed not at terminal I/O, but at session termination.
4. The hardcopy output access method can be specified by profile parameter HCAM or by the DEST subparameter of profile parameter PRINT for Printer 0. More specifications for the hardcopy output file can be made using the profile parameter PRINT or the macro NTPRINT for Printer 0.



# 125

## HD - Header Definition

---

With this session parameter, you define which default text is to be used when

- the field is output with a `DISPLAY` statement;
- an equal sign (=) is placed immediately before the field in a `WRITE` or `INPUT` statement.

<b>Possible settings</b>	'text'	120 alphanumeric or Unicode characters at maximum.
<b>Default setting</b>	none	
<b>Applicable statements</b>	DEFINE DATA	Parameter may be specified at field level and/or element level.
<b>Applicable command</b>	none	

This parameter can be specified

- at field/element level in a `DEFINE DATA` statement; see the sections *View Definition* and *EM, HD, PM Parameters for Field/Variable*;
- in the `Miscellaneous` field of the Data Area Editor (see *Columns in the Editing Area*);
- in the `SYSDDM` utility (see *Specifying Extended Field Attributes*).



# 126 HE - Helproutine

---

▪ HE Parameter Syntax .....	358
▪ Execution of Helproutines .....	360
▪ Examples .....	360

With this session parameter, you assign a helproutine or a help map to a field.

<b>Possible settings</b>		See <a href="#">HE Parameter Syntax</a> below.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	INPUT	
<b>Applicable command</b>	none	

Helproutines can be created with the Natural program editor, help maps with the Natural map editor.

The helproutine or help map may then be invoked during processing of an `INPUT` statement or a map by choosing either of the following methods:

- In the field for which to invoke the help request, enter the help character in the leftmost position of the field and press `ENTER`. The default help character is a question mark (?).

If you enter the help character at a different position of the field or if you enter more than one character, the string is taken as user input and no help is invoked. If the field contains hexadecimal zeroes, it depends on the terminal emulation whether Natural can interpret the values as a help request.

- Or:

Place the cursor in the field for which to invoke the help request and press the PF key defined as help function key with the `SET KEY` statement.

The following topics are covered below:

## HE Parameter Syntax

The syntax of this parameter is:

$HE=operand1 \left[ , \left\{ \begin{array}{l} operand2 \\ = \\ nX \end{array} \right\} \right] \dots 20$
---

Operand Definition Table:



Operand	Possible Structure	Possible Formats	Referencing Permitted	Dynamic Definition
<i>operand1</i>	C S	A	no	no
<i>operand2</i>	C S A	A U N P I F B D T L C O	no	no

## Syntax Element Description:

Syntax Element	Description
<i>operand1</i>	<p><i>operand1</i> is the name of the helproutine or help map to be invoked. The name may be a 1 to 8 character alphanumeric constant or user-defined variable. If a variable is used, it must have been previously defined. The case of the specified name is not translated. The name may contain an ampersand (&amp;); at execution time, this character will be replaced by the one-character code corresponding to the current value of the Natural system variable *LANGUAGE. This feature allows the use of multi-lingual helproutines or help maps.</p> <p>For additional information on using <i>operand1</i> within a map, see the HE helproutine option described in <i>Extended Field Editing in Map Editor</i> in the <i>Editors</i> documentation.</p>
<i>operand2</i>	<p>You may specify 1 to 20 parameters (<i>operand2</i>) which are passed to the helproutine or help map. They may be specified as constants or as user-defined variables which contain the values of the parameters.</p> <p>For additional information on using <i>operand2</i> within a map, see the HE helproutine option described in <i>Extended Field Editing in Map Editor</i> in the <i>Editors</i> documentation.</p>
=	<p>The equals sign (=) is used to pass an object or a field name to a helproutine or help map:</p> <ul style="list-style-type: none"> <li>■ If the equals sign is entered in the HE= specification at statement level, the name of the object (as contained in the system variable *PROGRAM) being executed is passed to the helproutine or help map. In <b>Example 3</b>, the object name passed is PROGRAM1.</li> <li>■ If the equals sign is entered in the HE= specification at field level, the name of the field is passed to the helproutine or help map. In <b>Example 3</b>, the field name passed is #PARM1.</li> </ul> <p>If the equals sign is used as a parameter, the corresponding parameter in the helproutine or help map must be specified with format/length A65.</p>
<i>nX</i>	<p>The notation <i>nX</i> can be used to specify parameters to be omitted, that is, for which no values are to be passed. The corresponding receiving parameters in the called helproutine's DEFINE DATA PARAMETER statement must be defined as OPTIONAL.</p>

**Notes:**

1. The operands must be separated either by the input delimiter character (as specified with the session parameter ID) or by a comma. However, a comma must not be used for this purpose if the comma is defined as decimal character (with the session parameter DC).
2. If parameters are specified, the helproutine must begin with a DEFINE DATA PARAMETER statement which defines fields that correspond with the parameters in format and length.

3. The value of the field for which a helproutine is specified may be referenced within the helproutine. This is done by specifying a field in the `DEFINE DATA PARAMETER` statement which corresponds in format and length with the original field. In the block of fields defined within the `DEFINE DATA PARAMETER` statement, this field must always be defined behind the parameters, if present.
4. If the field for which a helproutine is specified is an array element, its indices may be referenced by the helproutine. To do so, you specify index parameters with format I (integer), N (numeric unpacked), or P (packed numeric) at the end of the `DEFINE DATA PARAMETER` statement. You may specify up to three index parameters according to array dimensions.

## Execution of Helproutines

---

If a helproutine or help map is requested - by entering a question mark (?) in the field, or by pressing the help key (as defined with a `SET KEY` statement), or via a `REINPUT USING HELP` statement - all other data that may have been entered into fields are not assigned to the program variables until all help requests have been processed.



**Note:** Only one help request per `INPUT` statement is possible; that is, if help is requested for more than one field (for example, by entering question marks in multiple fields), only the first help request will be executed.

## Examples

---

### Example 1:

```
/* MAIN PROGRAM
DEFINE DATA
1 #A(A20/1:3)
END-DEFINE
...
SET KEY PF1=HELP
...
INPUT #A (2) (HE='HELPA',=)
...
END
```

**Example 2:**

```

/* HELP-ROUTINE 'HELPA'
DEFINE DATA PARAMETER
1 #VARNAME (A65)
1 #PARM1 (A20)
1 #VARINDEX (I2)
END-DEFINE
...

```

**Example 3:**

```

* Program 'PROGRAM1'
*
DEFINE DATA LOCAL
1 #PARM1 (A65) INIT <'valueparm1'>
END-DEFINE
SET KEY PF1 = HELP
FORMAT KD=ON
*
INPUT (AD=M HE='HELP1',=)
  'Enter ? for name of executed object:'
  / #PARM1
*
INPUT (AD=M)
  'Enter ? for field name:'
  / #PARM1 (HE='HELP1',=)
*
END

```

**Parameter Data Area in Example Helproutine HELP1:**

```

* Helproutine 'HELP1'
*
DEFINE DATA PARAMETER
1 #FLD1 (A65)
END-DEFINE
...

```



# 127

## HI - Help Character

This Natural profile parameter defines the character which is to be used to invoke a field-specific helproutine or a map helproutine (if defined for a given map).

<b>Possible settings</b>	any special character	The character which is to be used to invoke a field-specific helproutine or a map helproutine.  <b>Note:</b>  <ol style="list-style-type: none"><li>1. The character specified with the profile parameter HI must not be the same as the one specified with the profile/session parameter CF (control character for mainframe terminal commands).</li><li>2. It should not be the same as the one specified with the profile/session parameter DC (decimal character), profile/session parameter IA (input assign character) or profile/session parameter ID (input delimiter character).</li></ol>
	blank	<b>Note:</b>  <ol style="list-style-type: none"><li>1. Numeric fields which have a helproutine assigned are internally translated to alphanumeric format so as to make it possible for the user to enter a question mark into the field to invoke the helproutine.</li><li>2. To prevent this internal translation (that is, if you wish to make sure that alphabetical characters cannot be entered into a numeric field) you can set the profile parameter HI to blank.</li><li>3. When HI=' ' is set, a help key must be defined in the Natural application, using the SETKEY statement correspondingly; otherwise it is not possible to invoke a helproutine for any field.</li></ol>
<b>Default setting</b>	?	Question mark.
<b>Dynamic specification</b>	yes	

<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR0350N	See <i>SYSEXT - Natural Application Programming Interfaces in the Utilities</i> documentation.

# 128

## HW - Heading Width

With this session parameter you determine the width of a column output with a `DISPLAY` statement.

<b>Possible settings</b>	ON	The width of a <code>DISPLAY</code> column is determined by either the length of the heading text or the length of the field, whichever is longer.  <b>Note:</b> This is true even if no heading text is output, either because the <code>DISPLAY</code> statement contains the keyword <code>NOHDR</code> or the <code>DISPLAY</code> statement is a subsequent <code>DISPLAY</code> (see also the <code>DISPLAY</code> statement).
	OFF	The width of a <code>DISPLAY</code> column is determined by the length of the field.  <b>Note:</b> <code>HW=OFF</code> only applies to <code>DISPLAY</code> statements which do not create headers (that is, either a first <code>DISPLAY</code> statement with <code>NOHDR</code> option or a subsequent <code>DISPLAY</code> statement).
<b>Default setting</b>	ON	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>DISPLAY</code> <code>FORMAT</code>	
<b>Applicable command</b>	none	

### Example:

```
DISPLAY (HW=OFF)
```





# 129

## IA - Input Assign Character

This Natural profile and session parameter defines the character to be used as the assignment character for the input parameter processing in `INPUT` statements, either in keyword/delimiter mode or when processing data from the Natural stack.

<b>Possible settings</b>	any special character	Assignment character for the input parameter processing in <code>INPUT</code> statements.
<b>Default setting</b>	=	Equals sign.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR0350N, USR1005N *	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.  * Recommended.



### Notes:

1. The character specified with the `IA` parameter must not be the same as the character specified with the profile/session parameters `CF` (control character for mainframe terminal commands), `DC` (decimal character) or `ID` (input delimiter character) and should not be the same as the one specified with the profile parameter `HI` (help character).
2. Within a Natural session, the profile parameter `IA` can be overridden by the session parameter `IA`.
3. Under Natural Security, the setting of this parameter can be overridden by the *Session Parameters* option of the Library Profile.

**Example:**

In the following example, it is assumed that, for the beginning, the default input assign character (=) applies.

```

** Example 'IACHAR': Input Assign character
*****
DEFINE DATA LOCAL
1 #A (A1)
1 #B (A1)
END-DEFINE
*
INPUT #A #B
*
WRITE 'Field #A:' #A / 'Field #B:' #B
*
END

```

**1. Enter the command**

```
IACHAR #A=Y,#B=X
```

The program produces the following output:

```

Page      1                               05-01-19  11:05:51
Field #A: Y
Field #B: X

```

**2. Enter the command**

```
GLOBALS IA=:
```

This sets the input assign character to colon (:).

**3. Then enter the command**

```
IACHAR #B:X,#A:Y
```

The program produces the following output:

```

Page      1                               06-11-13  12:12:24
Field #A: Y
Field #B: X

```

# 130 IC - Insertion Character

With this session parameter, you specify the character string to be inserted in the column immediately preceding the value of a field output with a `DISPLAY` statement. The width of the output column is increased accordingly.

<b>Possible settings</b>	any character	Character string to be inserted. You can specify a string of one to ten characters.  <b>Note:</b> Insertion characters may optionally be specified within apostrophes, in which case any characters can be specified. Any character string specified which contains a closing parenthesis or a quotation mark must be enclosed within apostrophes. A blank in a character string not enclosed within apostrophes is represented by a circumflex accent (^).
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>FORMAT</code>	Parameter may be specified dynamically with the <code>FORMAT</code> statement.
	<code>DISPLAY</code>	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. The insertion character is inserted between leading spaces and the field value whereas the leading character is output in front of the leading space.
2. For numeric values, the insertion characters will be placed before the first significant digit printed.
3. The `IC` and `LC` parameters are mutually exclusive.
4. The parameter `IC` can also be used with `U` format fields.

5. For information on Unicode format, see also *Unicode and Code Page Support in the Natural Programming Language, Session Parameters, EMU, ICU, LCU, TCU versus EM, IC, LC, TC* in the *Unicode and Code Page Support* documentation.
6. The difference between the session parameters `LC`, `LCU` and `IC`, `ICU` will be evident, if the corresponding field is output right justified (session parameter `AD=R`).
7. See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.

**Examples:**

```
DISPLAY AA(IC=*)  
DISPLAY SALARY(IC='$')
```

# 131

## ICU - Unicode Insertion Character

With this session parameter, you specify the character string to be inserted in the column immediately preceding the value of a field output with a `DISPLAY` statement. The width of the output column is enlarged accordingly.

<b>Possible settings</b>	any character	Character string to be inserted. You can specify a string of one to ten characters.  <b>Note:</b> Insertion characters may optionally be specified within apostrophes, in which case any characters can be specified. Any character string specified which contains a closing parenthesis or a quotation mark must be enclosed within apostrophes. A blank in a character string not enclosed within apostrophes is represented by a circumflex (^).
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT	Parameter may be specified dynamically with the <code>FORMAT</code> statement.
	DISPLAY	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



### Notes:

1. The session parameter `ICU` is identical to the session parameter `IC`. The difference is that the insertion characters are always stored in Unicode format. This allows you to specify insertion characters with mixed characters from different code pages, and assures that always the correct character is displayed independent of the installed system code page.
2. For numeric values, the insertion characters will be placed before the first significant digit printed.
3. The parameters `ICU` and `LCU` are mutually exclusive.

See also:

- *Parameters to Influence the Output of Fields in the Programming Guide*
- *Unicode and Code Page Support in the Natural Programming Language, Session Parameters, EMU, ICU, LCU, TCU versus EM, IC, LC, TC in the Unicode and Code Page Support documentation.*

# 132

## ID - Input Delimiter Character

This Natural profile and session parameter defines the character to be used as a delimiter character for INPUT statements in keyword/delimiter mode.

<b>Possible settings</b>	any special character or blank	Input delimiter character. <b>Note:</b> If "blank" is specified, no input delimiter character is defined.
<b>Default setting</b>	,	Comma (.). <b>Note:</b> If the input delimiter character is to be a comma (,), it must be specified as ID=' , ' when using the dynamic parameter facility, because the comma character separates individual parameters.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. The character specified with this parameter must not be the same as the one specified with the profile/session parameter **DC** (decimal character) or **IA** (input assign character), and it should not be the same as the one specified with the **CF** parameter (control character for mainframe terminal commands) or **HI** parameter (help character).

2. The period (.) should not be used as input delimiter, because this might lead to situations in which a program termination period would be misinterpreted as input delimiter. An asterisk (\*) should not be used either.
3. Within a Natural session, the profile parameter ID can be overridden by the session parameter ID.
4. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.



# 133

## IKEY - Processing of PA and PF Keys

---

This Natural profile parameter specifies the action to be taken when a video-terminal program-attention key (PA key) or program-function key (PF key) is used to enter data, and the key has not been defined to the Natural program with the `SET KEY` statement.

<b>Possible settings</b>	ON	The value ENTR is placed in the Natural system variable *PF-KEY; that is, Natural reacts as if ENTER had been pressed.
	OFF	A REINPUT message is generated, prompting the user to press a valid key.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 134

## IM - Input Mode

---

This Natural profile and session parameter determines the default mode for video-terminal input.

<b>Possible settings</b>	F	Forms mode.
	D	Delimiter mode.
<b>Default setting</b>	F	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. Within a Natural session, the setting of the profile parameter `IM` can be overridden by the session parameter `IM`.
2. The `IM` parameter setting may also be changed with the Natural terminal commands `%D` and `%F`.
3. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.
4. For information on delimiter mode and forms mode, see the `INPUT` statement.



# 135

## IMSG - Session Initialization Error Messages

---

This Natural profile parameter is used to suppress the initialization error-messages screen. It can be useful to avoid undesired output, for example, for printer sessions.



**Caution:** As error diagnosis may become difficult, use this parameter with caution.

<b>Possible settings</b>	ON	The initialization error messages screen is displayed in the case of an error.
	OFF	The initialization error messages screen is not displayed.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 136

## IMSP - General Parameters for Natural IMS TM Interface

---

▪ NTIMSP Macro Syntax .....	382
▪ Keyword Subparameters .....	382
▪ Example of NTIMSP Macro .....	384

This Natural profile parameter can only be specified with the `NTIMSP` macro, dynamic parameter specification is not possible yet.

The `NTIMSP` macro is used to set general parameters for the Natural IMS TM Interface.

The `NTIMSP` macro can be specified only once in the Natural parameter module.

<b>Possible settings</b>	See below.
<b>Default setting</b>	See below.
<b>Dynamic specification</b>	no
<b>Specification within session</b>	no

This section covers the following topics:

## NTIMSP Macro Syntax

---

The `NTIMSP` macro is specified as follows:

```

NTIMSP NIINAME=value, *
      SUBPOOL=value, *
      THRELO=value, *
      TRNCODE=value
    
```

See [Keyword Subparameters](#).

## Keyword Subparameters

---

[NIINAME](#) | [SUBPOOL](#) | [THRELO](#) | [TRNCODE](#)

### NIINAME - Natural IMS TM Interface Module Name

`NIINAME=value` specifies the name of the Natural IMS TM Interface module to be used by the current driver.

Value	Explanation
1- 8 characters	A valid module name.
NIINTFM	This is the default value.



### SUBPOOL - Storage Subpool

SUBPOOL=*value* specifies the z/OS subpool to be used for storage requests.

Value	Explanation
0 - 127	The number of a z/OS task-related subpool used by a problem state program.
125	This is the default value.

### THRELO - Thread Relocation

THRELO=*value* determines whether the Natural storage thread can be allocated at a different virtual address after a terminal I/O.

Value	Explanation
ON	Thread relocation is enabled: the Natural thread can be allocated at a different virtual address after a terminal I/O.  This is the default value.
OFF	Thread relocation is disabled and the Natural thread remains at the same virtual address.  The size of the Natural thread is determined by the first Natural session that allocates the thread. As a consequence: <ul style="list-style-type: none"> <li>■ the THSIZE keyword subparameter (NTIMSPE macro) is ignored except for the first Natural session in an MPP environment,</li> <li>■ the RELO profile parameter is ignored, and</li> <li>■ the storage for the Natural thread remains allocated until the MPP environment is stopped.</li> </ul> <p><b>Note:</b> We recommend that you only set THRELO=OFF if you use Con-form.</p>

### TRNCODE - Identify Transaction Code

TRNCODE=*value* can be used to identify the transaction code.

Value	Explanation
ON	The TRNCODE keyword subparameter is activated to evaluate the TRNCODE parameter: <ul style="list-style-type: none"> <li>■ on the first card of the BPM CONTROL file,</li> <li>■ in the NIMBOOT macro,</li> <li>■ used as the startup parameter of the server environment.</li> </ul>
OFF	The TRNCODE keyword subparameter is deactivated.  This is the default value.

## Example of NTIMSP Macro

---

```
NTIMSP NIINAME=NATIMS1, SUBPOOL=0
```

# 137 IMSPE - Environment Parameters for Natural IMS TM

## Interface

---

▪ NTIMSPE Macro Syntax .....	386
▪ Keyword Subparameters .....	387
▪ Example of NTIMSPE Macro .....	398

This Natural profile parameter can only be specified with the `NTIMSPE` macro, dynamic parameter specification is not possible yet.

The `NTIMSPE` macro is used to define environment-specific parameter sets, which can be assigned to transaction definitions (`ENVPID` keyword subparameter of `NTIMSPT` macro).



**Note:** You can only define an `NTIMSPE` macro to the Natural parameter module if the module already contains at least one `NTIMSPT` macro. Otherwise, an assembly error occurs when trying to assemble the module.

<b>Possible settings</b>	See below.
<b>Default setting</b>	See below.
<b>Dynamic specification</b>	no
<b>Specification within session</b>	no

This section covers the following topics:

## NTIMSPE Macro Syntax

---

The `NTIMSPE` macro is specified as follows:

```

NTIMSPE ACTACTV=value, *
        ACTAHDR=value, *
        ACTARID=value, *
        ACTLOG=value, *
        BMPABER=value, *
        BROACTV=value, *
        CMBSIZE=value, *
        COLPSCR=value, *
        ENDMODN=value, *
        ENTRYNM=value, *
        ERRLHDR=value, *
        HCBSIZE=value, *
        HDENS DU=value, *
        LINPSCR=value, *
        MISIZE=value, *
        MONACTV=value, *
        MOSIZE=value, *
        NSBNAME=value, *
        PRDRIV=value, *
        ROLLSRV=value, *
        ROLLFN=value, *
        SPASIZE=value, *
        SPATID=value, *
        SUPNONC=value, *
        TERMDB=value, *
    
```

TERMIPL= <i>value</i> ,	*
THBELOW= <i>value</i> ,	*
THSIZE= <i>value</i> ,	*
USERID= <i>value</i>	

See *Keyword Subparameters*.

## Keyword Subparameters

ACTACTV | ACTAHDR | ACTARID | ACTLOG | BMPABER | BROACTV | CMBSIZE | COLPSCR | ENDMODN | ENTRYNM | ERRLHDR | HCBSIZE | HDENSU | LINPSCR | MISIZE | MONACTV | MOSIZE | NSBNAME | PRTDRIV | ROLLSRV | ROLLFN | SPASIZE | SPATID | SUPNONC | TERMDB | TERMIPL | THBELOW | THSIZE | USERID

### ACTACTV - Activate Accounting

This keyword subparameter only applies in dialog-oriented environments.

ACTACTV=*value* specifies whether the accounting function is activated.

Value	Explanation
ON	An accounting record is written with each terminal I/O.
OFF	No accounting record is written. This is the default value.

### ACTAHDR - Header for Accounting Records

This keyword subparameter only applies to the accounting function.

ACTAHDR=*value* defines the header for the accounting records if written to the IMS log file. This keyword subparameter is only evaluated if the **ACTLOG** keyword subparameter is set to **CMD**.

Value	Explanation
1 - 8 characters	A header name.
SAG\$\$\$\$	This is the default value.

### ACTARID - Accounting Record ID

This keyword subparameter only applies to the accounting function.

ACTARID=*value* specifies the accounting record ID if the accounting record is written using the LOG or SMF settings of the ACTLOG keyword subparameter.

Value	Explanation
A0 - FF	The log code if ACTLOG is set to LOG.
128 - 255	The number of the SMF record type if ACTLOG is set to SMF.



**Note:** There is no default value.

### ACTLOG - Write Accounting Records to Log File

This keyword subparameter only applies to the accounting function.

ACTLOG=*value* specifies how accounting records are written.

Value	Explanation
CMD	Accounting records are written to the IMS log file using the CMD call. This is the default value.
LOG	Accounting records are written to the IMS log file using the LOG call.
SMF	Accounting records are written to SMF using the <i>Authorized Services Manager</i> (see the <i>TP Monitor Interfaces</i> documentation).

### BMPABER - Specify Termination Error for BMP Run

BMPABER=*value* specifies how a BMP run should be terminated if either a Natural runtime error or a Natural IMS TM Interface non-recoverable error occurs.

Value	Explanation
ON	The BMP run is terminated with user abend code U3521.
OFF	The BMP run is terminated normally with the Natural termination error as the condition code. If the BMP run is terminated with a non-recoverable Natural IMS TM Interface error, condition code 1024 is set.  This is the default value.

**BROACTV - Enable/Disable Broadcasting**

This keyword subparameter only applies in dialog-oriented environments.

BROACTV=*value* enables or disables the broadcasting function.

Value	Explanation
ON	The broadcasting function is enabled
OFF	The broadcasting function is disabled. This is the default value.

**CMBSIZE - Command Buffer Size**

CMBSIZE=*value* specifies the size of the command buffer.

The command buffer is used by the application programming interfaces NIICMD and NIIGCMD, the service module CMCMND and the accounting function. For details, see the *TP Monitor Interfaces* documentation.

The size of the command buffer must accommodate the maximum length of the IMS commands to be processed and the maximum length of the accounting record including the user extension.

Value	Explanation
100 - 16777216	A buffer size in KB.
1024	This is the default value.

**COLPSCR - Number of Screen Columns**

COLPSCR=*value* specifies the number of columns per screen.

Value	Explanation
35 - 250	A screen width.
80	This is the default value.

### ENDMODN - Format of Termination Screen

ENDMODN=*value* specifies the MOD name to be used for formatting the screen which appears after a Natural session is terminated successfully. ENDMODN enables Natural to be included in a customer-specific menu.

The value of ENDMODN can be overridden by the application programming interface NIIEMOD and the service module CMEMOD. For details, see the *TP Monitor Interfaces* documentation.

If a Natural session terminates with an error, DFSM02 is always used to issue the appropriate Natural error message.

Value	Explanation
1 - 8 characters	A valid MOD name.
DFSM02	This is the default value.

### ENTRYNM - Identify Current Environment Parameter Set

ENTRYNM=*value* identifies the current environment-specific parameter set.

Value	Explanation
1 - 8 characters	The name of the environment parameter set currently used.
ENV00000	This is the default value.

### ERRLHDR - Header for IMS TM Error Logs

ERRLHDR=*value* specifies the header of the IMS TM log records which are written when errors occur in the Natural IMS TM Interface.

If you do not wish a message to be written to the IMS TM log in the case of a non-recoverable Natural IMS TM Interface error, explicitly set ERRLHDR to null, that is, specify ERRLHDR=,.

For further information, see *Recovery Handling* in the *TP Monitor Interfaces* documentation.

Value	Explanation
1 - 8 characters	A header name.
NIIERR\$\$	This is the default value.



**HCBSIZE - Size of Hardcopy Print Buffer**

HCBSIZE=*value* specifies the size of the hardcopy print buffer.

Records which are sent to a printer destination using the Natural hardcopy function are buffered.

Value	Explanation
0 - 16777216	A buffer size in KB.
1024	This is the default value.

**HDENS DU - High-Density Dump**

HDENS DU=*value* specifies whether a snap dump provoked by a Natural IMS TM Interface error is to be written as a high-density dump to a 3800 printing subsystem.

Value	Explanation
ON	A high-density dump is written.
OFF	No high-density dump is written.
	This is the default value.

**LINPSCR - Number of Screen Lines**

LINPSCR=*value* defines the number of lines per screen.

Value	Explanation
1 - 250	A screen size.
24	This is the default value.

**MISIZE - Buffer Size for Input Message**

MISIZE=*value* specifies the size of the buffer which is to contain the input message.

This area must be as large as the largest input message to be received from IMS TM.

Value	Explanation
100 - 16777216	A buffer size in KB.
4096	This is the default value.

### MONACTV - Enable/Disable Monitoring

This keyword subparameter only applies in dialog-oriented environments.

MONACTV=*value* enabled or disables the monitoring function. If enabled, the session status is written to the SIP server at each terminal I/O. If disabled, no session status is maintained.

Value	Explanation
ON	The monitoring function is enabled.
OFF	The monitoring function is disabled.  This is the default value.

### MOSIZE - Buffer Size for Output Message

MOSIZE=*value* specifies the size of the buffer which is to contain the output message. This area must be as large as the largest output message to be sent to IMS TM.

Value	Explanation
2048 - 16777216	A buffer size in KB.
4096	This is the default value.

### NSBNAME - Use NSB Name of Natural DL/I Interface

NSBNAME=*value* sets the name of the NSB to the NSB used by the Natural DL/I Interface.

Value	Explanation
ON	Sets the NSB name to the PSB name defined by the <b>PSB</b> keyword subparameter of the NTIMSPT macro for the transaction code in use.
OFF	Sets the NSB name to the PSB name used by IMS TM.  This is the default value.

### PRTDRIV - Driver for IMS TM Printer

PRTDRIV=*value* specifies the print driver to be used for reports which are directly written to an IMS TM printer.

For further information, see *Support of the Natural WRITE (n) Statement* in the *TP Monitor Interfaces* documentation.

Value	Explanation
<i>driver-name</i>	A driver name as listed in the following tables:  <a href="#">Drivers for SCS Printers</a> <a href="#">Drivers for Non-SCS Printers</a> <a href="#">Drivers for JES API</a>
SCS_S2	This is the default value.

### Drivers for SCS Printers

Driver	Purpose
SCS_B1	Form feed at start and end of report, starts page on line 1.
SCS_B2	Form feed at start and end of report, starts page on line 2.
SCS_E1	Form feed at end of report, starts page on line 1.
SCS_E2	Form feed at end of report, starts page on line 2.
SCS_N1	No form feed at start or end of report, starts page on line 1.
SCS_N2	No form feed at start or end of report, starts page on line 2.
SCS_S1	Form feed at start report, starts page on line 1.
SCS_S2	Form feed at start of report, starts page on line 2.

### Drivers for Non-SCS Printers

Driver	Purpose
NSCS_B1	Form feed at start and end of report, starts page on line 1.
NSCS_B2	Form feed at start and end of report, starts page on line 2.
NSCS_E1	Form feed at end of report, starts page on line 1.
NSCS_E2	Form feed at end of report, starts page on line 2.
NSCS_N1	No form feed at start or end of report, starts page on line 1.
NSCS_N2	No form feed at start or end of report, starts page on line 2.
NSCS_S1	Form feed at start report, starts page on line 1.
NSCS_S2	Form feed at start of report, starts page on line 2.

### Drivers for JES API

Driver	Purpose
JES	The following data set processing options for JES are taken from the corresponding <a href="#">NTPRINT</a> macro parameters or <code>DEFINE PRINTER</code> statement (see the <i>Statements</i> documentation) options:
JES	NTPRINT                      DEFINE PRINTER
CLASS	CLASS                              CLASS
COPIES	COPIES                              COPIES

Driver	Purpose															
	<table border="1"> <tr> <td>DEST</td> <td>DEST</td> <td>OUTPUT</td> </tr> <tr> <td>FORMS</td> <td>FORMS</td> <td>FORMS</td> </tr> <tr> <td>NAME</td> <td>NAME</td> <td>NAME</td> </tr> <tr> <td>OUTDISP</td> <td>DISP</td> <td>DISP</td> </tr> <tr> <td>PRTY</td> <td>PRTY</td> <td>PRTY</td> </tr> </table> <p>The generated JES API parameter string is:</p> <pre>IAFP=AOM, PRT0=..OUTDI(<i>disp</i>), DES(<i>dest</i>), CLA(<i>class</i>, COP(<i>copies</i>), FORMS(<i>forms</i>), NAME(<i>name</i>), PRTY(<i>prty</i>)</pre> <p><b>Note:</b> Unspecified NTPRINT/DEFINE PRINTER parameters/options are ignored.</p>	DEST	DEST	OUTPUT	FORMS	FORMS	FORMS	NAME	NAME	NAME	OUTDISP	DISP	DISP	PRTY	PRTY	PRTY
DEST	DEST	OUTPUT														
FORMS	FORMS	FORMS														
NAME	NAME	NAME														
OUTDISP	DISP	DISP														
PRTY	PRTY	PRTY														
JES xxxxx	<p>The data set processing options for JES are taken from the OUTPUT JCL statement with the name JESxxxxx where xxxxx can be up to 5 characters.</p> <p>The generated JES API parameter string is:</p> <pre>IAFP=AOM, OUTN=JESxxxxx</pre> <p>The OUTPUT JCL statement may look like:</p> <pre>JESxxxxx OUTPUT OUTDISP=WRITE, DEST=<i>dest</i>, CLASS=A, COPIES=1, FORMS=<i>form</i>, . . .</pre> <p><b>Note:</b> If the OUTPUT JCL statement is missing in the job stream, an error is reported.</p>															

### ROLLSRV - Natural Thread Storage

This keyword subparameter only applies in dialog-oriented environments.

ROLLSRV=*value* specifies the medium for saving a Natural thread between terminal output and input.

See also *Roll File and Roll Server* in the *TP Monitor Interfaces* documentation.

Value	Explanation
ON	The Natural roll server is used. This is the default value.
OFF	Roll files are used: see <a href="#">ROLLFN</a> .

**ROLLFN - Number of Roll Files**

This keyword subparameter only applies in dialog-oriented environments.

ROLLFN=*value* specifies the number of roll files to be used if **ROLLSRV** is set to OFF.

Value	Explanation
1 - 5	The number of roll files to be used.
1	This is the default value.

**SPASIZE - Buffer Size for Scratch-Pad Area**

This keyword subparameter only applies in dialog-oriented environments.

SPASIZE=*value* specifies the size of the buffer which is to contain the scratch-pad area.

In a non-conversational environment, this is also the size of the simulated SPA which is written to the SIP server.

Value	Explanation
256 - 16777216	A buffer size in KB.
1024	This is the default value.

**SPATID - Subsystem ID for ASM**

SPATID=*value* specifies the Natural subsystem ID for the Authorized Services Manager (ASM) which is used to save the SPA for a non-conversational driver. The ASM is described in the *Operations* documentation.

Value	Explanation
1 - 5 characters	A subsystem ID.  This value must be the same for all parameter tables and must be the same as the value specified for SPATID in the NIMPIXT macro (see the <i>TP Monitor Interfaces</i> documentation).
NAT2	This is the default value.

### SUPNONC - Enable/Disable Environment Switching

This keyword subparameter only applies in dialog-oriented conversational environments.

SUPNONC=*value* specifies whether switching from a terminal-oriented non-conversational environment to a conversational environment is possible.

Value	Explanation
ON	Switching is allowed.
OFF	Switching is not allowed.  This is the default value.

### TERMDB - Session Termination for Missing DL/I Database

This keyword subparameter only applies in dialog-oriented environments.

TERMDB=*value* specifies whether the Natural session is to be terminated if one of the DL/I databases specified in the PSB is not available.

Value	Explanation
ON	The Natural session terminates.
OFF	The Natural session does not terminate.  If one of the databases is not available when it is accessed, the Natural transaction code is suspended by IMS TM.  This is the default value.

### TERMIPL - Session Termination for IPL

This keyword subparameter only applies in dialog-oriented environments.

TERMIPL=*value* specifies whether a Natural session is terminated with an error message when an IPL has occurred between the current transaction step and the start of the session.

Value	Explanation
ON	The Natural session terminates.
OFF	The Natural session does not terminate.  This is the default value.

### THBELOW - Natural Thread Allocation

THBELOW=*value* specifies whether the Natural thread is allocated below or above the 16 MB line. For batch message processing, the thread is always allocated below the 16 MB line.

Value	Explanation
ON	The Natural thread is allocated below the 16-MB line.  This is the default value.
OFF	The Natural thread is allocated above the 16 MB line.

### THSIZE - Natural Thread Size

THSIZE=*value* specifies the size of the Natural thread. This is the area which contains all Natural buffers that relate to user sessions.

Value	Explanation
100000 - 99999999	A thread size in multiples of eight greater than or equal to 100000.
1048576	This is the default value.

### USERID - Determine \*INIT-USER Value

This keyword subparameter only applies to the BMP driver.

USERID=*value* specifies how the value of the system variable \*INIT-USER (see the *System Variables* documentation) is determined.

Value	Explanation
ON	The Natural user ID specified in *INIT-USER is either taken from the security access control block if a security package is active or from the USER parameter of the job card.
OFF	The Natural user ID specified in *INIT-USER is taken from the job name.  This is the default value.

## Example of NTIMSPE Macro

---

```
NTIMSPE ENTRYNM=ENV0021, *  
    ACTACTV=ON, *  
    ACTLOG=LOG, *  
    ACTARID=A1, *  
    PRTDRIV=SCS_E, *  
    THBELOW=OFF, *  
    THSIZE=1000000, *  
    SPATID=ASM1
```



# 138

## IMSPT - Transaction Definitions for Natural IMS TM

### Interface

---

▪ NTIMSPT Macro Syntax .....	400
▪ Keyword Subparameters .....	400
▪ Example of NTIMSPT Macro .....	404

This Natural profile parameter can only be specified with the `NTIMSPT` macro, dynamic parameter specification is not possible yet.

The `NTIMSPT` macro is required to define the transaction code for each Natural transaction, along with individual transaction parameters. The keyword subparameters `TRAN` and `PSB` must be explicitly specified; there are no default value settings.

<b>Possible settings</b>	See below.
<b>Default setting</b>	See below.
<b>Dynamic specification</b>	no
<b>Specification within session</b>	no

This section covers the following topics:

## NTIMSPT Macro Syntax

---

The `NTIMSPT` macro is specified as follows:

```

NTIMSPT ALTPCB=value, *
        ENVPID=value, *
        HCPCB=value, *
        MSGPCB=value, *
        NRAST=value, *
        PCBS=value, *
        PSB=value, *
        TRAN=value, *
        TYPE=value, *
        WRKPCBS=value
    
```

See [Keyword Subparameters](#).

## Keyword Subparameters

---

[ALTPCB](#) | [ENVPID](#) | [HCPCB](#) | [MSGPCB](#) | [NRAST](#) | [PCBS](#) | [PSB](#) | [TRAN](#) | [TYPE](#) | [WRKPCBS](#)

**ALTPCB - Alternate TP PCB**

ALTPCB=*value* determines the alternate TP PCB to be used for the service modules CMQUEUE, CMQUEUEEX, NIIDQUMS and NIIDPURG (see the *TP Monitor Interfaces* documentation).

The specified number can be overwritten by the service modules.

Value	Explanation
1 - 255	The number of the alternate TP PCB to be used.
1	This is the default value.

**ENVPID - Specify Environment Parameter Set**

ENVPID=*value* specifies the environment parameter set to be used in the transaction code table.

Value	Explanation
1 - 8 characters	The name of the environment parameter set as defined by the <a href="#">ENTRYNM</a> keyword subparameter in the NTIMSPE macro.
ENV00000	This is the default value.

**HCPCB - PCB for Hardcopy**

HCPCB=*value* specifies the PCB number to be used for the hardcopy print function.

Value	Explanation
SYSPCB	The first alternate TP PCB is used.  This is the default value.
WRKPCB	One of the additional alternate TP PCBs is used. This enables you to use an express TP PCB for the hardcopy function.

**MSGPCB - Message Print PCB**

This parameter only applies to message-oriented environments and the server driver.

MSGPCB=*value* specifies the PCB to be used for printing error messages and standard output in a message-oriented environment and the server driver.

Value	Explanation
SYSPCB	The first alternate TP PCB is used.  This is the default value.
OWNPCB	The second alternate TP PCB is reserved and used. This enables you to use an express TP PCB for sending messages.

### NRAST - Natural Offset within Scratch Pad Area

NRAST=*value* defines the offset of the Natural Reserved Area (NRA) within the IMS TM scratch-pad area.

The current length of the NRA is 157 bytes. The length of the NRA can change with the next version of the Natural IMS TM Interface.



**Note:** If you want to save your own information in the SPA in order to pass it to a non-Natural transaction, we recommended that you save your data in front of the NRA in order to be version compatible.

Value	Explanation
16 - 32600	The offset of the NRA within the scratch-pad area.
16	This is the default value.

### PCBS - PCB Name Assignment

PCBS=(*pcb-1, num-1, pcb-2, num-2, . . .*) is used to assign a logical name to a PCB.

Value	Explanation
<i>pcb-n</i> (1 - 8 characters)	<i>pcb-n</i> specifies the logical name of the PCB.
1-255	This parameter is optional.  <i>num-n</i> specifies the positional number of the PCB in the PSB. If not specified, the sequence number of the PCB in the parameter list is used.



**Note:** There is no default value.

**PSB - PSB Name of IMS TM Transaction**

`PSB=value` defines the name of the PSB used by the IMS TM transaction. The PSB name is used to identify the entry in the IMS TM transaction code table for non-message-driven batch message processing and for batch environment.

Value	Explanation
1 - 8 characters	The PSB name that corresponds to the current transaction code. The PSB name must comply with the naming conventions IMS TM uses in the APPLCTN macro.  There is no default value.

**TRAN - IMS TM Transaction Code**

`TRAN=value` specifies the IMS TM transaction code.

The transaction code is ignored in non-message-driven BMP and batch processing environments.

Value	Explanation
1 - 8 characters	A transaction code. The code must comply with the naming conventions IMS TM uses in the TRANSACT macro.  There is no default value.

**TYPE - Natural Transaction Type**

`TYPE=value` defines the type of Natural transaction.

Value	Explanation
CONV	Conversational Natural session.  This is the default value.
NONC	Non-conversational Natural session.
SFE	Natural Development Server and/or Natural Web I/O Interface server session.

## WRKPCBS - Number of Alternate PCBs for Printing

WRKPCBS=*value* specifies the number of alternate TP PCBs used for printing in addition to the first TP PCB and, if appropriate, to the MSGPCB.

Value	Explanation
0	No IMS TM printer is available.  This is the default value.
1 - 32	The number of alternate TP PCBs used for printing.  Example 1:  MSGPCB=SYSPCB WRKPCBS=2  The PSB must contain 3 alternate TP PCBs.  Example 2:  MSGPCB=OWNPCB WRKPCBS=2  The PSB must contain 4 alternate TP PCBs. The second alternate TP PCB is reserved for the error messages and standard output of the message-oriented environment.

## Example of NTIMSPT Macro

---

```
NTIMSPT TRAN=MYNAT,PSB=MYPST
```

# 139

## INTENS - Printing of Intensified Fields

---

This Natural profile parameter specifies how many times an intensified field or the underline character is to be overprinted when it is printed on a print device.

<b>Possible settings</b>	1 - 10	Number of times an intensified field or the underline character is overprinted.  <b>Note:</b> The underline character is printed only if the parameter is set greater than 1. With <code>INTENS=1</code> , underlined fields are printed without underlining.
<b>Default setting</b>	3	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	





# 140

## IP - INPUT Prompting Text

---

This session parameter is used to control prompting text in `INPUT` statements.

<b>Possible settings</b>	ON	Even if no text is specified preceding the input/output in an <code>INPUT</code> statement, the name of the field will be generated by default as a text element preceding the field as prompting text.
	OFF	No automatic prompting text will be generated for input/output fields in an <code>INPUT</code> statement. Only fields explicitly preceded with a text element will receive the text as prompting text.
<b>Default setting</b>	ON	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT INPUT	
<b>Applicable command</b>	none	

### Example:

```
FORMAT IP=OFF
```

---



# 141 IS - Identical Suppress

---

With this session parameter, you can suppress the printing of identical information in successive lines created by a `WRITE` or `DISPLAY` statement.

<b>Possible settings</b>	ON	A value which is identical to the previous value for the field will not be displayed.  <b>Note:</b> If a <code>DISPLAY</code> or <code>WRITE</code> statement is used to create multiple output lines using the <code>VERT</code> or slash (/) notation, <code>IS=ON</code> applies only to the first line.
	OFF	No automatic suppression will be used.
<b>Default setting</b>	OFF	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>DISPLAY</code> <code>FORMAT</code> <code>WRITE</code>	
<b>Applicable command</b>	none	



## Notes:

1. The `IS` parameter setting can be suspended for one record by issuing the `SUSPEND IDENTICAL SUPPRESS` statement.
2. The `IS` parameter may be used in combination with the parameters `ES` and `ZP` to cause empty line suppression.
3. See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.

**Example:**

```
FORMAT IS=ON
```

# 142

## ISIZE - Size of Initialization Buffer

---

This Natural profile parameter specifies the size of the Natural initialization buffer (ISIZE).

<b>Possible settings</b>	8-32767	Buffer size in KB.
<b>Default setting</b>	16	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. The ISIZE buffer is used to hold the parameters Natural is initialized with, as well as the work areas and tables used by Natural during the initialization.
2. The profile parameter ISIZE is ignored if it is specified in a parameter string activated by a SYS or PROFILE profile parameter or in an alternative Natural parameter module (as specified with the PARM profile parameter).



# 143

## ITERM - Session Termination in Case of Initialization

### Error

---

This Natural profile parameter specifies whether or not the Natural session is to continue in the case of a session initialization error.

<b>Possible settings</b>	ON	If a session initialization error occurs, the session is terminated immediately with message NAT9970 after the initialization error messages.
	OFF	If session initialization errors occur, the following happens: <ul style="list-style-type: none"><li>■ In online mode, the initialization errors are displayed, and you can choose to either continue or terminate the session.</li><li>■ In batch mode, the initialization errors are displayed, and the session is continued - possibly leading to errors or undesired results later in the session. In case no other errors occur during session execution, the message NAT9964 (with condition code 4) will be issued at session termination instead of NAT9995.</li></ul> <p><b>Note:</b> The setting ITERM=OFF is not honored when an INPL command is placed on the Natural command stack at the beginning of the Natural session, that is, with STACK=INPL. The setting ITERM=ON is forced in this case.</p>
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** The setting of ITERM is irrelevant if profile parameter IMSG is set to OFF, because then any initialization errors are suppressed, and the session continues.





# 144 ITRACE - Internal Trace Function

---

This Natural profile parameter is used to activate/deactivate the internal trace function.



**Important:** Do not use this parameter without prior consultation of Software AG Support.

<b>Possible settings</b>	ON	Trace data is passed to the SYSRDC utility.
	OFF	No trace data is passed to the SYSRDC utility.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	Within a Natural session, the terminal command %TRI can be used to activate/ deactivate the internal trace function.



**Note:** The internal trace function is intended primarily for Software AG internal use for debugging purposes.



# 145

## KD - Key Definition

---

This session parameter is used to display the names assigned to the PF keys (see the SET KEY statement).

<b>Possible settings</b>	ON	The names assigned to the PF keys are displayed.
	OFF	The names assigned to the PF keys are not displayed.
<b>Default setting</b>	OFF	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT	
<b>Applicable command</b>	none	



### Notes:

1. The PF key assignment information will always be displayed automatically in the two bottom lines of the physical screen with any output created by the INPUT, WRITE, DISPLAY, and PRINT statement.
2. As the key assignment display requires two lines, the logical page size (see the session parameter PS) must be reduced by two.

### Example:

```
FORMAT KD=ON
```



# 146

## KEY - Setting Assignments to PA, PF and CLEAR Keys

---

This Natural profile parameter is used to assign settings to the CLEAR key, program attention keys (PA keys) and program function keys (PF keys) on video terminals.

<b>Possible settings</b>	any character string	Settings can be assigned to the keys PA1 to PA3, PF1 to PF24 and to the CLEAR key.  <b>Note:</b> The setting assigned to each key can be any character string. The character string must represent a Natural system command or a user command (user program). If the setting contains embedded blanks, it must be enclosed in apostrophes.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	no	
<b>Specification within session</b>	yes	
<b>Application programming interface</b>	USR4005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. Assignments made with the profile parameter `KEY` are only valid when specified from the Natural `NEXT` prompt.
2. The entire string specified with the profile parameter `KEY` must be enclosed in parentheses (except `KEY=OFF`). `KEY=OFF` un-assigns all keys.

**Examples:**

```
KEY=(PF4=OFF,PF1=HELP,PF3='EDIT MAP',PF2=USERPGM1,CLR=LOGOFF)
KEY=OFF
KEY PF4=OFF
KEY PF3="EDIT MAP"
KEY CLR=LOGOFF
KEY OFF
```

# 147

## LC - Lower to Upper Case Translation

---

This Natural profile parameter controls lower-case to upper-case translation of input characters.

<b>Possible settings</b>	ON	No translation of lower-case characters to upper case is performed.
	OFF	Natural translates all lower-case characters, except input from the Natural stack which was placed there by the <code>STACK</code> statement, to upper case.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	To disable or enable lower-case to upper-case translation dynamically within the active Natural session, you should use the terminal commands <code>%L</code> or <code>%U</code>
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. This parameter does not apply to Natural stack data which was placed on the Natural stack by the `STACK` statement.
2. Lower/upper-case translation can also be performed by a TP monitor before control is given to Natural. The corresponding TP-monitor parameters for lower/upper-case translation also have to be reviewed to ensure correct translation.
3. A user-supplied translation table can be used to perform translation from lower case to upper case; see `NTUTAB1` macro (contained in the `UTAB1` profile parameter description).





# 148

## LC - Leading Characters

With this session parameter, you can specify leading characters that are displayed immediately before a field output by a `DISPLAY` statement. The width of the output column is increased accordingly.

<b>Possible settings</b>	any character	Up to 10 characters may be specified.  <b>Note:</b>  1. Leading characters may optionally be specified enclosed within apostrophes, in which case, any characters can be specified. 2. Any character string specified which contains a closing parenthesis or a quotation mark must be enclosed within apostrophes. 3. A circumflex (^) is used to represent a blank in a character string not enclosed within apostrophes.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>FORMAT</code>	Parameter may be specified dynamically with the <code>FORMAT</code> statement.
	<code>DISPLAY</code>	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



### Notes:

1. The session parameters `LC` and `IC` are mutually exclusive.
2. The parameter `LC` can also be used with `U` format fields.
3. For information on Unicode format, see also *Unicode and Code Page Support in the Natural Programming Language, Session Parameters, EMU, ICU, LCU, TCU versus EM, IC, LC, TC*.

4. See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.

**Example:**

```
DISPLAY {LC=*}
```

# 149

## LCU - Unicode Leading Characters

With this session parameter, you can specify leading characters that are displayed immediately before a field output by a `DISPLAY` statement. The width of the output column is enlarged accordingly.

<b>Possible settings</b>	any character	Up to 10 characters may be specified.  <b>Note:</b>  1. Leading characters may optionally be specified enclosed within apostrophes, in which case, any characters can be specified. 2. Any character string specified which contains a closing parenthesis or a quotation mark must be enclosed within apostrophes. 3. A circumflex (^) is used to represent a blank in a character string not enclosed within apostrophes.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>FORMAT</code>	Parameter may be specified dynamically with the <code>FORMAT</code> statement.
	<code>DISPLAY</code>	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



### Notes:

1. The session parameter `LCU` is identical to the session parameter `LC`. The difference is that the leading characters are always stored in Unicode format. This allows you to specify leading characters with mixed characters from different code pages, and assures that always the correct character is displayed independent of the installed system code page.

2. The session parameters `LCU` and `ICU` are mutually exclusive.

See also:

- *Parameters to Influence the Output of Fields in the Programming Guide*
- *Unicode and Code Page Support in the Natural Programming Language, Session Parameters, EMU, ICU, LCU, TCU versus EM, IC, LC, TC in the Unicode and Code Page Support documentation.*

# 150

## LE - Reaction when Limit for Processing Loop Exceeded

This Natural profile and session parameter controls the action to be taken if the limit of retrieved records was exceeded in a READ, FIND or HISTOGRAM processing loop.

<b>Possible settings</b>	ON	The database loop will be terminated when the limit is reached. The program flow will continue normally with the statement following the terminated database loop. When the execution of the Natural object is complete, error NAT0957 (Database loop limit reached with 'LE=ON' .) is raised.  <b>Note:</b> LE=ON applies only to programs which are loaded from a library located in the system file FUSER, that is, library SYSTEM, or with a (library) name that does not start with the prefix SYS.
	OFF	The database loop will be terminated when the limit is reached. The program flow will continue normally with the statement following the terminated database loop. When the execution of the Natural object is complete, no error message appears.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the Utilities documentation.



### Notes:

1. The LE parameter applies to READ, FIND and HISTOGRAM statements with a limit specified (see [Example](#)).
2. The limit may be specified either globally for a Natural object by using the LIMIT statement or by specifying an explicit limit value supplied in the database processing loop.
3. Within a Natural session, the profile parameter LE can be overridden by using the session parameter LE.

### Example:

```
DEFINE DATA LOCAL
1 EMPL-VIEW VIEW OF EMPLOYEES
  2 NAME
END-DEFINE
READ (10) EMPL-VIEW BY NAME
  WRITE NAME
END-READ
END
```

LE=OFF: after 10 records the loop ends without a message.

LE=ON: after 10 records the loop ends with an error message NAT0957 (Database loop limit reached with 'LE=ON').

# 151

## LFILE - Logical System File Definition

---

- LFILE Parameter Syntax ..... 430
- NTLFILE Macro Syntax ..... 431
- Example of LFILE Parameter ..... 431
- Examples of NTLFILE Macro ..... 432

This Natural profile parameter specifies information concerning the physical database file to be associated with a logical system file for Software AG products.

<b>Possible settings</b>	See <i>LFILE Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTLFILE</code> is used instead.
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR0011N	
	USR2004N (recommended)	

**Notes:**

- LFILE and NTLFILE can be used for Software AG products which have their own system files (for example, Con-nect, Natural Review) to specify where such a system file is to be located. Such products use the database ID 255 and a **logical file number** in their data definition modules (DDMs). With the LFILE parameter or the macro NTLFILE, you specify which **physical file number** and **database ID** (and, if applicable, password and cipher key) are associated with that logical file number. Natural maps the logical file number to the physical file number and database ID and uses it for any database calls.
- LFILE is especially useful for defining a scratch-pad file with the logical file number 212; see also the profile parameter `ROSY`, *Natural Scratch-Pad File* in the *Operations* documentation, and *Defining a Scratch-Pad File* in the *Installation for z/OS*, *Installation for BS2000/OSD* and *Installation for z/VSE* documentation.

## LFILE Parameter Syntax

---

The LFILE parameter is specified as follows:

```
LFILE=(logical-fnr,physical-dbid,physical-fnr,password,cipher-key,[RO])
```

Where:



Syntax Element	Value	Explanation
<i>logical-fnr</i>	1 - 251	Logical file number. This parameter is mandatory.
<i>physical-dbid</i>	0 - 65535, except 255	Physical database ID. Database ID 255 is reserved for logical system files for Software AG products.
<i>physical-fnr</i>	1 - 65535	Physical file number.
<i>password</i>	1 - 8 characters.	Password and cipher key are only required if the database file has been password-protected and/or ciphered using the Adabas security feature.
<i>cipher-key</i>	8 numerical digits.	
R0	n/a	Flag for read-only access.

 **Note:** To define different logical files, the LFILE parameter must be specified multiple times (separated by a comma or a blank); see [Example of LFILE Parameter](#).

## NTLFILE Macro Syntax

The NTLFILE macro is specified as follows:

```
NTLFILE logical-fnr,physical-dbid,physical-fnr,password,cipher-key,R0
```

 **Notes:**

1. For an explanation of the syntax elements and for possible values, see [LFILE Parameter Syntax](#).
2. To define different logical files, the LFILE parameter or the NTLFILE macro must be specified several times; see [Examples of NTLFILE Macro](#).

## Example of LFILE Parameter

```
LFILE=(180,73,10),LFILE=(251,40,9,TEST99)
```

## Examples of NTLFILE Macro

---

```
NTLFILE 180,73,10  
NTLFILE 251,40,9,TEST99
```

# 152

## LIBNAM - Name of External Program Load Library

---

This Natural profile parameter specifies the name of the load library from which programs are to be loaded dynamically when Natural is used under BS2000/OSD, z/OS batch mode, or TSO.

<b>Possible settings</b>	character string	Any valid BS2000/OSD file name, or 8-byte DDNAME of load library
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies under BS2000/OSD, z/OS batch mode, and TSO.
2. Under z/OS, a JCL statement with a DDNAME that equals the LIBNAM setting also needs to be specified. By default, programs are loaded from the job steplib.



# 153 LOG (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 154

## LS - Line Size

---

- Profile Parameter LS ..... 438
- Session Parameter LS ..... 438
- Specification with Statements ..... 439

This Natural profile and session parameter specifies the maximum number of characters permitted per line for `DISPLAY`, `INPUT` and `WRITE` statements.

The following topics are covered below:

## Profile Parameter LS

---

When used as a profile parameter, `LS` is honored in batch mode only and defines the physical line size. In online mode, the line size is always set to the physical screen width.

<b>Possible settings</b>	35 - 250	Maximum number of characters permitted per line.
	0	Use physical line size (mostly 132).
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	

## Session Parameter LS

---

<b>Possible settings</b>	2 - 250	Maximum number of characters permitted per line.
	0	Only permitted with the statement <code>SET GLOBALS</code> or with the system command <code>GLOBALS</code> . The value 0 will be replaced by the physical line size.
<b>Default setting</b>	Physical line size.	
<b>Applicable command</b>	<code>GLOBALS</code>	
<b>Applicable statements</b>	<code>FORMAT</code> <code>SET GLOBALS</code>	
<b>Application programming interface</b>	<code>USR1005N</code>	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



**Notes:**

1. At logon to a library, `LS` is reset to the physical line size.
2. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.



---

## Specification with Statements

---

When specified with a statement, the LS parameter is evaluated at compilation time.

<b>Applicable statements</b>	DISPLAY INPUT WRITE	Parameter may be specified at statement level.
------------------------------	---------------------------	--



# 155

## LT - Limit for Processing Loops

This Natural profile and session parameter is used to limit the number of database records which can be retrieved within Natural applications.

<b>Possible settings</b>	1 - 2147483647 0	Maximum number of records that can be retrieved. All retrieved records (including records rejected by means of a WHERE clause) are counted and compared with this limit. LT=0 defines that no limit is in effect for the number of retrieved records.  <b>Note:</b> Within a session, you can specify a value in the range of 0 to <i>n</i> , where <i>n</i> is the value of profile parameter LT at session start.
<b>Default setting</b>	99999999	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	<b>Note:</b> When the LT parameter is used in conjunction with the statement SET GLOBALS, the limit value that can be set may not exceed the LT value defined in the Natural parameter module.
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	



### Notes:

1. The limit set with the LE parameter applies to all statements retrieving records from the database; that is, statements that initiate processing loops, such as READ, FIND, HISTOGRAM or SELECT, and statements that retrieve only a single record, such as FIND UNIQUE, FIND NUMBER, FIND FIRST, GET (SAME) and SELECT SINGLE.
2. All retrieved records are counted and the result of the count is compared with the LT limit. The count also includes those records which were rejected by a WHERE clause of a FIND, READ or

HISTOGRAM statement. The LT limit does not affect the statements STORE, UPDATE, DELETE, END TRANSACTION and BACKOUT TRANSACTION.

3. When a record is retrieved from the database, the count of retrieved records is incremented before it is compared with the current value of the LT parameter. If the incremented count exceeds the current LT value, Natural error NAT1003 (Global limit for database calls reached) is raised. The count of retrieved records is reset to zero whenever a Natural program is started on Level 1. The count is not reset if the program on Level 1 invokes another Natural object (for further information, see *Multiple Levels of Invoked Objects* in the *Programming Guide*). Therefore, the LT parameter limits the number of records retrieved from the database by a Level 1 program and objects invoked by that program on a level other than 1.
4. If the value of the LT parameter is dynamically changed within a program by using a SET GLOBALS LT=*n* statement, the new limit value becomes effective for the next statement that retrieves a record from the database.
5. Within a Natural session, the profile parameter LT can be overridden by using the session parameter LT.

# 156

## MADIO - Maximum DBMS Calls between Screen I/O

### Operations

---

This Natural profile parameter is used to specify the maximum number of DBMS calls permitted between two screen I/O operations (also in batch mode).

<b>Possible settings</b>	30 - 65535	Maximum number of DBMS calls.
	0	MADIO=0 indicates that no limit is to be in effect.
<b>Default setting</b>	512	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.
	USR1068N *	* Recommended.



**Note:** If the specified limit is exceeded, the Natural program is interrupted and the user is notified with Natural Error Message 1009.



# 157

## MAINPR - Override Default Output Report Number

This Natural profile parameter can be used to separate program output from Natural system output, which may be useful particularly in batch mode.

<b>Possible settings</b>	0 - 31	Valid printer number.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR6002N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. This applies to program output for Report 0, as produced by `DISPLAY`, `PRINT`, `WRITE` or `INPUT` statements, except `INPUT` statements which contain non-protected input fields (field attribute specification `AD=A`) or modifiable input fields (`AD=M`).
2. If the `MAINPR` parameter is specified, program output for Report 0, which would normally be output on the printer assigned to Report 0, is output on the printer specified with `MAINPR` instead; while system output (`NEXT` prompt, `DATA` prompt, etc.) is always output on the primary output device (Report 0); the `MAINPR` setting must be a valid printer number (0 - 31).
3. A logical printer corresponding to the report number specified must be defined to Natural. A printer is defined with the profile parameter `PRINT`, with the macro `NTPRINT` or automatically by `JCL` (in batch mode or under TSO).
4. The `MAINPR` parameter does not apply to output from system programs in the Natural system library `SYSLIB`, which is always output on the primary output device (Report 0). However, you can use the `USEMAINPR` option of the `LIST` system command to route the output to the printer specified with `MAINPR`. `USEMAINPR` is described in *Settings* in the *System Commands* documentation.





# 158

## MAXCL - Maximum Number of Program Calls

---

This Natural profile parameter is used to specify the maximum number of program calls permitted between two screen I/O operations.

<b>Possible settings</b>	10 - 65535	Maximum number of program calls.
	0	MAXCL=0 indicates that no limit is to be in effect.
<b>Default setting</b>	50	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.  * Recommended.
	USR1068N *	



**Note:** If the specified limit is exceeded, the Natural program is interrupted and the user is notified with an appropriate Natural error message (NAT1029).



# 159

## MAXROLL - Number of CMROLL Calls before Session

### Suspension

---

It specifies the number of CMROLL calls after which a Natural session is suspended, that is, a potential roll-out of the Natural thread is to be performed.

<b>Possible settings</b>	1 - 32767	Number of CMROLL calls.
	0	MAXROLL=0 indicates that no conditional CMROLL requests are issued.
<b>Default setting</b>	128	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



#### Notes:

1. This Natural profile parameter is applicable only under Com-plete and CICS.
2. The MAXROLL parameter can be used to control the frequency of conditional CMROLL requests. For example, MAXROLL=128 means that a conditional CMROLL request is issued after every 128th statement at compilation.
3. In certain cases, the Natural nucleus issues a conditional CMROLL request (wait time = 0), particularly at compilation after each statement. This is done to reset the CPU time window (under Com-plete) in order to avoid an automatic cancel due to the CPU time limit being exceeded; however, this has a negative impact on performance.
4. Note concerning CMROLL: Calling CMROLL is the Natural interface for WAIT or DELAY functionality (see also sample Natural program SUSPEND in library SYSEXTP); when calling CMROLL, you may pass a delay interval/wait time as parameter. When a session has to wait in CMROLL, shared resources as a thread in Com-plete or a shared thread in CICS (THREADS=nonzero) are released, and as a consequence a potential roll-out of the Natural thread is performed. Calling CMROLL with a delay interval of 0 is called conditional, as the session actually needs not wait for a certain time; however, when other sessions are waiting for a thread, the session is suspended, which

may result in a roll-out of the Natural thread. In CICS if no other session is waiting, just an EXEC CICS SUSPEND is executed to prevent AICA abends.

# 160

## MAXYEAR - Maximum Year for Date/Time Values

This Natural profile parameter sets the maximum value for the year part of date and time values that can be entered as constants or as terminal input.

<b>Possible settings</b>	2699	The maximum year that can be entered is 2699; that is, the maximum date value that can be entered is 2699-12-31.
	9999	The maximum year that can be entered is 9999; that is, the maximum date value that can be entered is 9999-12-31.
<b>Default setting</b>	2699	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. MAXYEAR=9999 changes the maximum date value that can be entered from 2699-12-31 to 9999-12-31.
2. Before setting the value for MAXYEAR to 9999, you should carefully check your application for arithmetic operations or assignments of date or time values to fields that have data formats other than date or time, and perform the necessary changes. Otherwise, unexpected overflows leading to Natural errors at execution time may occur.

For example, you should check for

- redefinitions of date/time fields with P6/P12 fields
- assignments of date/time values to non-date/time fields such as `P6 := D`
- arithmetic operations with date/time values where the result is assigned to a non-date/time field, for example: `P6 := D + 7`
- input of date/time fields that is used in arithmetic operations with non-date/time fields later on, for example:

```
INPUT D(D)
P6 := D + 1
```

The use of the Natural Engineer is recommended to check your application.

The setting of MAXYEAR affects

- checking of date/time constants by the compiler, for example: `P6 := D'2699-12-31'`
- INPUT statements with input or modifiable date/time fields
- MOVE EDITED statements with source or target date/time fields
- IS (D) option in logical condition criteria
- MASK option in logical condition criteria with four-digit year check (YYYY)
- VAL system function with date field as target operand

You should ensure that the MAXYEAR settings are the same for

- cataloging and executing a Natural application
- Natural RPC servers and Natural RPC clients

See also:

- *Formats D - Date, and T - Time in the Programming Guide*
- *Date and Time Constants in the Programming Guide*
- Session parameter [EM](#) in the *Parameter Reference* documentation
- Profile parameter [YD](#) in the *Parameter Reference* documentation

# 161 MC - Multiple-Value Field Count

---

With this session parameter, you determine the number of values of a multiple-value field to be output by default when the field is specified without an index in a `DISPLAY` or `WRITE` statement.

<b>Possible settings</b>	0 - 191	Number of values.  <b>Note:</b> If <code>MC=0</code> is specified, then there is no default index range for the output of an MU field. Therefore, when an MU field is output, it is necessary to specify an explicit index or index range. Otherwise, a syntax error (NAT0281) will be raised.
<b>Default setting</b>	1	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>DISPLAY</code> <code>FORMAT</code> <code>INPUT</code> <code>PRINT</code> <code>WRITE</code>	
<b>Applicable command</b>	none	



**Note:** This parameter may be used in reporting mode only.

## Example:

```
FORMAT MC=5
```





# 162

## MENU - Menu Mode

---

This Natural profile parameter is used to enable or disable Natural menu mode.

<b>Possible settings</b>	ON	Menu mode is enabled.
	OFF	Menu mode is disabled.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	



# 163

## ML - Position of Message Line

---

This profile parameter specifies the line to be used for the display of applications which do not set the message line position explicitly by using the `SET CONTROL 'M'` statement.

<b>Possible settings</b>	B	Natural messages are displayed at the bottom of the screen.
	T	Natural messages are displayed at the top of the screen.
<b>Default setting</b>	T	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET CONTROL 'M'	
<b>Applicable command</b>		
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. For information on the operand 'M', see the Natural terminal command %M (Control of Message Line).
2. Within a Natural session, the profile parameter ML can be overridden by the session parameter ML.



# 164

## MONSIZE - Size of SYSTP Monitor Buffer

---

This Natural profile parameter specifies the size of the buffer used by the Monitor function of the SYSTP utility (described in the *Utilities* documentation).

<b>Possible settings</b>	5-256	Buffer size in KB.
	0	If MONSIZE=0 or if the requested space is not available, the Monitor function of the SYSTP utility cannot be used, except there is a monitor buffer pool defined by means of profile parameter BPI or parameter macro NTBPI.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro NTDS to specify the size of the buffer.



# 165

## MP - Maximum Number of Pages of a Report

---

This Natural profile and session parameter specifies the maximum number of pages to be produced for a report.

<b>Possible settings</b>	1 - 99999	The value specified is the number of physical pages and has no effect on the starting page number used. The program will be terminated with an error message if the MP value is exceeded.
	0	No page limit is defined.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Applicable statements</b>	DISPLAY FORMAT PRINT WRITE	
<b>Applicable command</b>	none	



**Note:** Within a Natural session, the setting of profile parameter MP can be reduced, but not increased by the `FORMAT` statement. The value specified with the session parameter MP applies only to the specified report.





# 166

## MS - Manual Skip

---

With this session parameter, you control the cursor positioning during the processing of an INPUT statement.

<b>Possible settings</b>	ON	See example below.  <b>Note:</b> The setting MS=ON is not supported under BS2000/OSD.
	OFF	The cursor will be positioned to the next input field as soon as the value for the current field is entered with all positions.
<b>Default setting</b>	OFF	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT INPUT	
<b>Applicable command</b>	none	

### Example:

```
INPUT (MS=ON) #A #B
```



# 167

## MSGSF - Display System Error Messages in Short/Full

### Format

---

This Natural profile parameter can be used to avoid truncation of Natural system error messages.

<b>Possible settings</b>	ON	System error messages will be displayed in full; that is, program name, line number and actual message text.
	OFF	System error messages will be displayed in short form; that is, only the actual message text will be displayed (but not the program name and line number).
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	Within a Natural session, the profile parameter MSGSF can be overridden by the Natural terminal command %MSGSF.

By default, a Natural system error message consists of the following:

- the name of the program,
- the number of the line that caused the error,
- the actual text of the message.

Depending on the size of the window in which the message is displayed, the text may be truncated. With this parameter, you can avoid such truncation.



# 168

## MT - Maximum CPU Time

This Natural profile and session parameter determines the maximum amount of CPU time which can be used by a Natural program.



**Important:** In server environments where the server itself runs without any operating system controlled CPU time limit, it is strongly recommended to set the profile parameter MT to a non-zero value to prevent the formation of endless loops caused e.g. by application errors. This recommendation applies to Natural RPC and Natural Development Server servers.

<b>Possible settings</b>	1 - 9999999	Maximum amount of CPU time in seconds.  <b>Note:</b>  1. If Natural Security is installed, the profile parameter MT can be overridden within Natural Security. 2. With Natural Security, the maximum value for the profile parameter MT is 32767. 3. To use a higher value as specified with the MT profile or session parameter, specify MT=0 within Natural Security.
	0	MT=0 defines that no Natural CPU time limit is to be in effect.
<b>Default setting</b>	60	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the Utilities documentation.



**Notes:**

1. This Natural profile and session parameter only applies to programs executed in batch mode, under Natural Development Server (SPoD) or under Natural for TSO.
2. CPU time measurement starts when a Natural program is started from `NEXT` mode or by means of a `FETCH` statement, that is, on program level 1. In non-batch mode (Natural Development Server, Natural for TSO), CPU time measurement is restarted at every terminal I/O.
3. The limit for programs operating in interactive mode is controlled by the TP monitor in use.
4. The maximum value that can be used is determined by the operating system environment. Any setting in excess of the maximum is reduced to the maximum supported by the operating system.
5. In system environments which do not support CPU time measurement, the limit is interpreted as elapsed time. The CPU time limit is ignored for systems without timer support.
6. Within a Natural session, the profile parameter `MT` can be overridden by the session parameter `MT`.

# 169

## NAFSIZE - Size of Buffer for Natural Advanced Facilities

---

This Natural profile parameter specifies the size of the work buffer used by Natural Advanced Facilities.

<b>Possible settings</b>	1 - 64	Buffer size in KB.
	0	NAFSIZE=0 disables Natural Advanced Facilities.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies if Natural Advanced Facilities is installed.
2. Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.
3. If Natural Advanced Facilities is to be used, a setting has to be specified for this parameter; see *NATSPool Initialization* and further information on the `NAFSIZE` parameter in *Natural Profile Parameters for NATSPool* in the *Natural Advanced Facilities* documentation.
4. If the requested space is not available, Natural Advanced Facilities cannot be used.





# 170

## NAFUPF - Natural Advanced Facilities User Profile

---

This Natural profile parameter is used to specify the user-profile name for Natural Advanced Facilities.

<b>Possible settings</b>	1 - 8 characters	Name of the user profile.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies if Natural Advanced Facilities is installed.
2. See *NATSPPOOL Initialization* in the *Natural Advanced Facilities* documentation.



# 171

## NC - Use of Natural System Commands

This Natural profile and session parameter controls whether Natural system commands can be used during the Natural session or not.

<b>Possible settings</b>	ON	System commands cannot be used.  <b>Exceptions:</b>  FIN, LAST, LOGOFF, LOGON, MAINMENU, RENUMBER, RETURN, SETUP and TECH.  <b>Note:</b>  1. If you have Natural Security installed, any system command restrictions you set with Natural Security are valid, regardless of the setting of the NC profile parameter.  2. In a Natural Development Server environment on mainframe computers, the value OFF will be assumed for the Natural Development Server, even if NC=ON has been specified.  3. If NC=ON has been specified on the client side, subsequent system commands issued on the client side will be rejected as described above.
	OFF	All system commands can be used.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>		

<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.
--	----------	---



### Notes:

1. Within a Natural session, the profile parameter `NC` can be overridden by the session parameter `NC`.
2. Natural terminal commands and user-created commands (object module names) are not affected by the `NC` parameter.
- 3.

# 172 NISN (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 173

## NL - Numeric Length for Output

This session parameter determines the default input/output length for a numeric field used in a DISPLAY, INPUT, PRINT or WRITE statement.

<b>Possible settings</b>	<i>n.m</i>	The length is specified as <i>n.m</i> , where <i>n</i> represents the number of positions before the decimal separator, and <i>m</i> represents the number of positions after the decimal separator.  The <i>m</i> notation is optional. The total of <i>n+m</i> must not exceed 29.  <b>Note:</b>  1. If NL is set less than the field length, values are truncated. No error is produced when relevant digits are truncated.  2. If NL is set greater than the field length, values are expanded with blanks. No error is produced when an input field is truncated.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT INPUT PRINT WRITE	
<b>Applicable command</b>	none	



### Notes:

1. The NL parameter must not be specified for groups.
2. Any edit mask specified for a field will override the NL parameter for this field.

3. See also *Parameters to Influence the Output of Fields in the Programming Guide*.

**Example:**

```
DISPLAY #AA(NL=20) #AB(NL=3.2)
```



# 174

## NUCNAME - Name of Environment-Independent Nucleus

This Natural profile parameter specifies the name of the environment-independent Natural nucleus if it is to be loaded dynamically and not linked to the environment-dependent Natural nucleus.

<b>Possible settings</b>	1 - 8 characters	Valid load module name.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> By specifying this parameter dynamically, you are able to use different environment-independent Natural nuclei (for example, for production and for testing) together with the same environment-dependent Natural nucleus without having to relink the nucleus.
<b>Specification within session</b>	no	



### Notes:

1. The profile parameter `NUCNAME` does not apply under BS2000/OSD.
2. The profile parameter `NUCNAME` is ignored if it is specified in a parameter string activated by a `SYS` or `PROFILE` profile parameter or in an alternative Natural parameter module (as specified with the `PARM` profile parameter).

For further information, see:

- *Environment-Independent Nucleus* in the *Installation for z/OS* documentation.
- *Environment-Independent Nucleus* in the *Installation for z/VSE* documentation.



# 175

## 04I - Collect Data for Optimize for Infrastructure

---

This Natural profile parameter is used to control the performance data collection in the Optimize Monitor Buffer Pool for Optimize for Infrastructure.

<b>Possible settings</b>	ON	Performance data is collected and passed to Optimize for Infrastructure.
	OFF	No performance data is collected for Optimize for Infrastructure.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** For information on how to start the Optimize Monitor Buffer Pool, see *Optimize Monitor Buffer Pool* in the *Natural Operations* documentation.



# 176

## OBJIN - Use of CMOBJIN as Natural Input File

---

This Natural profile parameter indicates whether the CMOBJIN file, see *Natural in Batch Mode* in the *Operations* documentation is to be used for input data provided with the INPUT statement in batch mode.

<b>Possible settings</b>	Y	Data for a Natural INPUT statement are read from the CMOBJIN file.
	N	The CMOBJIN file is not used and any data for an INPUT statement are read from the CMSYNIN file.
	R	Natural determines which option has been selected for a particular session by the presence or absence of the CMOBJIN DD/FILE statement in the Natural execution JCL/JCS.
<b>Default setting</b>	R	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	



**Note:** This Natural profile parameter only applies to batch mode.



# 177

## OPF - Overwriting of Protected Fields by Helproutines

This Natural profile and session parameter specifies whether the content of a write-protected field (attribute definition `AD=P`) can be overwritten by a helproutine assigned to the field.

<b>Possible settings</b>	ON	A helproutine assigned to a field can overwrite the field's content, even if the field is write-protected.
	OFF	Helproutines cannot overwrite the contents of write-protected fields.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. The `OPF` profile parameter only applies to the field for which a helproutine is invoked; it does not affect parameters explicitly passed to the helproutine. This means that the `OPF` profile parameter takes no effect if the field for which help is invoked is also explicitly specified as a parameter to be passed to the helproutine.
2. In addition, in reporting mode you can change the `OPF` setting using the statement `SET GLOBALS`.
3. Within a Natural session, the profile parameter `OPF` can be overridden by the session parameter `OPF`.





# 178

## OPRB - Database Open/Close Processing

---

▪ OPRB Parameter Syntax .....	488
▪ Dynamic OPRB with Natural Security .....	489
▪ OPRB for VSAM .....	490
▪ OPRB for Adabas .....	490
▪ NTOPRB Macro Syntax .....	491
▪ Examples of NTOPRB Macros .....	492

This Natural profile parameter controls the use of database open/close commands during a Natural session that accesses an Adabas or VSAM database.

The `NTOPRB` macro can be used as an alternative to the profile parameter `OPRB` in the `NTPRM` macro. The maximum length of an `OPRB` parameter specification is 256 bytes. If you require a longer specification, use the `NTOPRB` macro instead of the `OPRB` parameter.

<b>Possible settings</b>	See <i>OPRB Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Notes:**

1. The Natural profile parameter `OPRB` and the corresponding macro `NTOPRB` only apply to Adabas and VSAM databases.
2. Generally, the `OPRB` parameter uses one of the above syntaxes (the possible contents of the *strings* depend on the database system).
3. Instead of using the `OPRB` parameter, you can also use the macro `NTOPRB` in the Natural parameter module.
4. If you wish to make `OPRB` specifications that are to apply to all databases, it is strongly recommended that you use the `OPRB` parameter in the `NTPRM` macro (and not an `NTOPRB` macro).

## OPRB Parameter Syntax

---

The `OPRB` parameter is specified as follows:

### Variant 1 - Open Request for All Databases

```
OPRB=(string)
```

With this syntax you specify an open request for *all* databases.

### Variant 2 - Open Request for Specific Databases

```
OPRB=(DBID=nn1,string,DBID=nn2,string,...)
```

With this syntax you specify an open request for specific individual databases. As defined in the macro `NTDB`, the specified DBID identifies the type of database.

### Variant 3 - Open Request for Specific Databases and Default Open Request for All Others Not Specified Explicitly

```
OPRB=(string1,DBID=nn1,string2,DBID=nn2,string3,...)
```

With this syntax you specify an open request for specific individual databases (*string2* and *string3*) and also a default open request - the initial *string1*- which applies to all databases for which you do not specify an individual string.

### Variant 4 - Open Request Using a (Non-)Restricted Call

```
OPRB=(DBID=nn1,NR=value,string,...)
```

With the subparameter `NR=value` you specify whether the Adabas open command `OP` is to be executed as a restricted or non-restricted call. This controls the value set in the Command Option 1 (`COPT1`) of the open command `OP`.

Where:

Value	Explanation
NR=OFF	Causes a restricted open, with <code>COPT1=R</code> . This is the default value.
NR=ON	Causes a non-restricted open, when <code>COPT1</code> is left empty.

## Dynamic OPRB with Natural Security

A dynamically specified `OPRB` parameter applies for all logons to libraries in whose security profiles no `OPRB` parameter is specified. For a logon to a library in whose security profile the `OPRB` parameter is specified, any dynamically specified `OPRB` parameter is ignored, and the one from the security profile applies.

## OPRB for VSAM

The *strings* which can be specified for VSAM databases are described under *OPRB Parameter for VSAM Databases* in the *Natural for VSAM* documentation.

## OPRB for Adabas

For Adabas databases, the `OPRB` parameter is required if either of the following conditions are true for the Natural session:

- An explicit list of Adabas files to be accessed/updated is to be provided. This is necessary, for example, if Adabas cluster updating or exclusive file control is to be requested.
- A single logical transaction is to span two or more Natural programs and, therefore, it is not desired to have Natural issue an `END TRANSACTION` and `CL` (close) command at the termination of any given Natural program.

Possible Content of Parameter String	Explanation
<code>ACC=(file-list)</code>	Specifies access permission (read) for the files in the file list.
<code>UPD=(file-list)</code>	Specifies access/update permission (read/write) for the files in the file list.
<code>EXF=(file-list)</code>	Specifies exclusive file control: no other users may access/update the file.
<code>EXU=(file-list)</code>	Specifies exclusive update permission (exclusive read/write) for the files in the file list.
<code>ACODE</code>	Specifies the option to enforce a user encoding for A fields. <b>Note:</b> The required encoding code for <code>ACODE</code> is derived from the current <code>CP</code> parameter setting of the Natural session.
<code>WCODE</code>	Specifies the option to enforce a user encoding for W fields. <b>Note:</b> The required encoding code for <code>WCODE</code> is always 4095.
<code>ARC</code>	Defines a special data architecture for fields in the record and value buffers. This definition overrides the architecture key defined for remote calls in Entire Net-work.



### Notes:

1. For further information on these settings, refer to the description of the Adabas `OP` command in the *Adabas Command Reference* documentation.
2. If the `OPRB` parameter is omitted in the Natural parameter module or `OPRB=OFF` is specified as a dynamic parameter, a Natural session commences with an Adabas open command requesting

UPD (access/update) to the Natural system file. Natural also issues `RELEASE CID` (Adabas RC) commands to release all ISN lists (ISN lists specified in a `RETAIN` clause of a Natural `FIND` statement are not released).

The Adabas record buffer to be used with the initial Adabas `OP` command can be explicitly provided. The format is similar to that used in an Adabas record buffer for the `OP` command with the exception that no blanks can be embedded, and the complete setting must be enclosed in parentheses (not apostrophes).

#### Example 1:

```
OPRB=(ACC=2,4,6,UPD=8.)
```

This specifies that Adabas Files 2,4 and 6 are to be made available for access only and that Adabas File 8 is to be made available for update (which also implies access).

#### Example 2:

```
OPRB=(EXU=1,2,3.)
```

This specifies that Adabas Files 1,2 and 3 are to be placed under exclusive control for this Natural session.

Combinations of the keywords `ACC`, `UPD` and `EXU` must follow the rules as defined in the relevant Adabas documentation. When these keywords are coded, Natural issues an `OP` command at the start of a Natural session and a `CL` at the end of the Natural session. At the end of a Natural program, only the required `RC` commands are issued to release held ISN lists.

In all of the above situations, the `OP` command, which is always issued at the start of a Natural session, contains the user ID for the Natural session in the Additions 1 field of the Adabas control block. In batch mode, this is the job name. In TP mode, this is the setting supplied at system initialization by the Natural interface module. In both cases, the setting used is available in the Natural system variable `*INIT-USER`.

## NTOPRB Macro Syntax

The syntax of the `NTOPRB` macro is as follows:

```
NTOPRB dbid, 'string'
```



#### Notes:

1. For possible values, see the `OPRB` parameter; if you use Natural with VSAM, see also the *Natural for VSAM* documentation.
2. If *string* is very long, it can be divided in up to five strings separated by commas (see examples below), as the Assembler allows single strings up to 256 bytes only.

## Examples of NTOPRB Macros

---

```
NTOPRB 12, 'ACC=40,UPD=20'  
NTOPRB 15, 'EXU=1, ','2,3'
```

# 179

## OPT - Control of Natural Optimizer Compiler

---

▪ OPT Parameter Syntax .....	494
▪ NTOPT Macro Syntax .....	494

This parameter activates/deactivates the Natural Optimizer Compiler and controls the various options related to it. It corresponds to the macro `NTOPT` in the Natural parameter module.

<b>Possible settings</b>	See <i>Dynamic Profile Parameter OPT</i> in the <i>Natural Optimizer Compiler</i> documentation.	
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTOPT</code> is used instead.
<b>Specification within session</b>	yes	



**Note:** This Natural profile parameter only applies if the Natural Optimizer Compiler is to be used.

The following topics are covered below:

## OPT Parameter Syntax

The parameter syntax of `OPT` is, for example, as follows:

```
OPT=(INDX,OVFLW,ZD=OFF)
```

For more syntax examples, refer to *Dynamic Profile Parameter OPT* in the *Natural Optimizer Compiler* documentation.

## NTOPT Macro Syntax

The syntax of the `NTOPT` macro is, for example, as follows:

```
NTOPT 'INDX,OVFLW,ZD=OFF'
```

For more syntax examples, refer to *Macro NTOPT* in the *Natural Optimizer Compiler* documentation.



# 180

## OSP - Parameters for z/OS Batch

---

▪ OSP Parameter Syntax .....	496
▪ NTOSP Macro Syntax .....	496
▪ Keyword Subparameters .....	496
▪ Example of OSP Parameter .....	500
▪ Example of NTOSP Macro .....	500

The parameters for z/OS batch can be specified as subparameters of profile parameter [OSP](#) or macro [NTOSP](#).

<b>Possible settings</b>	See <a href="#">OSP Parameter Syntax</a> .	
<b>Default setting</b>	See <a href="#">Keyword Subparameters</a> .	
<b>Dynamic specification</b>	yes	The parameter OSP can only be specified dynamically. In the Natural parameter module, use the macro <a href="#">NTOSP</a> .
<b>Specification within session</b>	no	

## OSP Parameter Syntax

The OSP parameter is specified as follows:

```
OSP=(keyword-subparameter=value,keyword-subparameter=value,...)
```

For information on subparameter names and values, see [Keyword Subparameters](#).

## NTOSP Macro Syntax

The NTOSP macro is specified as follows:

```
NTOSP ABEXIT=value, *
      DUMPDSN=value, *
      LBPNAME=value, *
      LEHDLR=value, *
      SUBPOOL=value, *
      TIOBSZ=(value1,value2), *
      USERID=value
```

See [Keyword Subparameters](#).

## Keyword Subparameters

[ABEXIT](#) | [DUMPDSN](#) | [LBPNAME](#) | [LEHDLR](#) | [SUBPOOL](#) | [TIOBSZ](#) | [USERID](#)

## ABEXIT - Abend Processing

ABEXIT=*value* specifies the mode of abend processing within Natural.

Value	Explanation
ESTAE	Natural intercepts all abends and issues the appropriate error messages.  This is the default value.
SPIE	Only program checks (SOCx abends) are intercepted.
OFF	Natural does not intercept any abends or program checks at all. This value corresponds to profile parameter DU=FORCE.



**Note:** The setting ABEXIT=OFF is not recommended because some functions, which require the abend interception, will not work any longer. The usage of profile parameter MT will cause an abend U0322 instead of error NAT0953 when the CPU time limit is reached.

## DUMPDSN - Dump Data Set Name Prefix

DUMPDSN=*value* can be used to define the prefix for a dynamically allocated dump data set. Then each dump will be written by the z/OS service IEATDUMP to a separate data set instead of the standard data set (SYSUDUMP or SYSMDUMP). This can be very helpful in batch server environments when multiple dumps from different Natural sessions must be written.

The complete dump data set name will be as follows:

```
value.D&YYMMDD.T&HHMMSS.&SYSNAME.&JOBNAME
```

Value	Explanation
1 - 8 characters	High level qualifier for the dump data set name.
' ' (blank)	No dumps are written by means of IEATDUMP. Instead, any dumps are written to the standard dump data set (SYSUDUMP or SYSMDUMP) if allocated.  This is the default value.

## LBPNAME - Sharing of Local Buffer Pools

LBPNAME=*value* controls the sharing of the local buffer pools when running multiple Natural sessions within the same region.

Value	Explanation
1 - 8 characters	Name of shared local buffer pool environment.
' ' (blank)	The local buffer pools are not shared. This is the default value.

**Notes:**

1. LBPNAME defines the name of the shared local buffer pool environment, and is used to locate the shared local buffer pool.
2. When running multiple Natural sessions in a z/OS batch or TSO region concurrently, each session allocates storage for a separate local buffer pool. Except for the Natural z/OS batch mode server, the local buffer pools are not shared by default, that is, if the different sessions use the same Natural objects, these have to be loaded once for each session separately. If a name is specified, all Natural sessions will share the same local buffer pool.

**LEHDLR - Use of an LE Error Handler for Calling LE Subprograms**

LEHDLR=*value* specifies whether Natural uses an LE error handler for the call of LE subprograms.

Value	Explanation
ON	An LE error handler is set up by Natural during the call of LE subprograms. This means, if an unhandled LE error occurs during the execution of an LE subprogram, Natural will get control and can handle it (by issuing error NAT0954).  This is the default value.
OFF	No set-up of an LE error handler is done by Natural during the call of LE subprograms. This means, if an unhandled error occurs during the execution of a LE subprogram, the LE enclave is terminated and so the Natural session is lost.

**Notes:**

1. For information on LE runtime options, see the description of source module NATLEOPT in the *Installation for z/OS* documentation.
2. For information on Natural running with the IBM Language Environment, refer to *Natural Execution - Miscellaneous Topics, LE Subprograms* in the *Operations* documentation.

## SUBPOOL - Storage Subpool for GETMAIN Requests

SUBPOOL=*value* specifies the storage subpool for GETMAIN requests.

Value	Explanation
1 - 127	Subpool number.
0	This is the default value.



### Notes:

1. The subparameter SUBPOOL is honored only in the Natural parameter module which is linked to the batch driver, but not in an alternative parameter module which is activated using a PARM= specification.
2. As the subparameter SUBPOOL is evaluated during session initialization only, it cannot be specified as a dynamic subparameter.

## TIOBSZ – Size of the Primary I/O Buffer for Batch Processing

TIOBSZ=(*value1*, *value2*) specifies the size of the primary I/O buffer for batch and/or server processing.

Value	Explanation
	Size of the primary I/O buffer in KB.
<i>value1</i>	Batch size: 4 - 32 KB. It is allocated below the 16 MB line.
<i>value2</i>	Server size: 32 - 999999 KB. It is allocated above the 16 MB line.
(8, 64)	This is the default setting.

### Alternative Specifications:

- TIOBSZ=10 or TIOBSZ=(10) defines only the batch size.
- TIOBSZ=( , 33) defines only the server size. The value which is not specified will remain unchanged.

## USERID - Content of System Variable \*INIT-USER

USERID=*value* specifies the content of the system variable \*INIT-USER.

Value	Explanation
ON	The variable is set to either the user ID from the security access control block (ACEE) if a security package (as RACF or ACF2) is involved or the USER parameter from the job card.
OFF	The user ID is the job name.  This is the default value.



**Notes:**

1. The content of \*INIT-USER can be changed by the user ID exit NATUEX1 during session initialization.
2. For further information, see *Configuring Natural, Natural User Exits, NATUEX1 - User Exit for Authorization Control* in the *Operations* documentation.

## Example of OSP Parameter

---

```
OSP=(LBPNAME=NATTEST1,USERID=ON)
```

## Example of NTOSP Macro

---

```
NTOSP LBPNAME=NATTEST1,USERID=ON
```

# 181 OUTDEST - Output Destination for Asynchronous

## Processing

---

This Natural profile parameter specifies the destination to which any Natural error message produced by an asynchronous application is to be sent.

<b>Possible settings</b>	1 - 8 characters.	Destination to which a Natural error message is sent.
<b>Default setting</b>	Setting of profile parameter <a href="#">SENDER</a>	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to Natural under CICS, Complete and *openUTM*.
2. After an error message has been sent, Natural terminates the asynchronous session.
3. Under *openUTM*, this parameter is used to specify the ID of the terminal where output from an asynchronous application is to be displayed.
4. When and how error messages/output from an asynchronous application are output depends on the respective TP monitor.

For further information, see:

- *Asynchronous Natural Processing under CICS*
- *Asynchronous Natural Processing under Complete/SMARTS*
- *Asynchronous Transaction Processing under openUTM*





# 182

## OVSIZE - Storage Thread Overflow Size

---

This Natural profile parameter specifies the maximum total amount of variable storage that may be allocated by one Natural session outside its storage thread.

<b>Possible settings</b>	0-2097151	Maximum total storage outside the thread in KB.
<b>Default setting</b>	2097151	That is, the storage outside the thread is limited by the region size only.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

If the storage within the thread is exhausted during a Natural session, additional storage can be allocated outside of the thread. `OVSIZE` can be used to limit the total amount of variable storage. This does not affect physical storage (see profile parameter `WPSIZE`), which is allocated outside the thread always.

For non-thread environments (e.g. in batch mode or under TSO), this parameter is not honored.



# 183

## PARM - Alternative Parameter Module

---

This Natural profile parameter specifies an object module containing profile parameter definitions.

<b>Possible settings</b>	1 - 8 characters	Module name.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. These definitions are coded using the various macros as described under *Building a Natural Parameter Module* in the *Operations* documentation. The macros are then assembled, resulting in an object module whose name is specified by the user.
2. When the `PARM` parameter is specified (either in the linked Natural parameter module or as a dynamic parameter at Natural session start), the appropriate object module is loaded and the profile parameter definitions contained therein take effect. The parameter module is loaded dynamically from the `steplib`.
3. Under CICS, a PPT entry is required for this parameter module.
4. Under BS2000/OSD, z/OS batch mode and TSO, the current `steplib` can be defined by profile parameter `LIBNAM`.
5. Any profile parameter definitions in effect before the `PARM` parameter is processed (for example, definitions contained in the linked parameter module or prior dynamic parameters), except the profile parameters `ISIZE` and `NUCNAME`, are overridden when the specified parameter module is loaded. Therefore, any dynamic parameters should be specified after the `PARM` specification.
6. The profile parameters `ISIZE` and `NUCNAME` are ignored if specified in an alternative Natural parameter module.
7. To restrict the use of an alternative parameter module, you can use the macro `NTUSER` (described in the `USER` profile parameter description).



# 184

## PC - Control of Personal-Computer Access Method

This Natural profile parameter determines whether support of the personal-computer access method is to be provided using Natural Connection.

<b>Possible settings</b>	ON	Personal-computer support is enabled. The Natural statements READ PC FILE or WRITE PC FILE can be used (for uploading or downloading); see UPLOAD PC FILE and DOWNLOAD PC FILE.  <b>Note:</b> With PC=ON, the system variable *DEVICE will always contain the value PC.
	OFF	No personal-computer support is to be provided.
	NAM	Field names are sent when data are uploaded/downloaded.  <b>Note:</b> This value is for mainframe environments only.
	NONAM	No field names are sent when data are uploaded/downloaded.  <b>Note:</b> This value is for mainframe environments only.
<b>Default setting</b>	(OFF , NAM)	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	The terminal commands %+ and %- can be used to control the PC support.



### Notes:

1. This Natural profile parameter only applies if Natural Connection is installed.
2. Multiple values are specified in a value list; see *Example*.
3. See the Natural Connection documentation for further information.
4. The files used for the PC access method have to be defined with the macros `NTPRINT` and `NTWORK` or the profile parameters `PRINT`, `WORK` and `HCAM`.

**Example:**

PC=(ON, NONAM)

# 185

## PC - Periodic Group Count

---

This session parameter determines the number of periodic group occurrences to be output by default if a periodic group (or a field contained within a periodic group) is specified without an index in a DISPLAY or WRITE statement.

<b>Possible settings</b>	0 or 1 - 191	Number of values.  <b>Note:</b> If PC=0 is specified, then there is no default index range for the output of a PE field. Therefore, when a PE field is output, it is necessary to specify an explicit index or index range. Otherwise, a syntax error (NAT0281) will be raised
<b>Default setting</b>	1	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT INPUT DISPLAY WRITE PRINT	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



**Note:** This session parameter may be used in reporting mode only.

**Example:**

```
FORMAT PC=5
```



# 186

## PCNTRL - Print-Control Characters

---

This Natural profile parameter specifies the line-advance characters for printing which are inserted in Column 0 of each print line.

<b>Possible settings</b>	Any character string	This parameter can be specified in character or hexadecimal format.
<b>Default setting</b>	X '404142434445464748494A4B4C4D4E4F' (in BS2000/OSD environments) ' 0 - ' (z/OS, z/VSE environments) <b>Note:</b> This is the default setting according to ASA standard settings, which means that a blank causes a line advance of 1 line, 0 of 2 lines and - of 3 lines. <b>Caution:</b> Do not change the default setting of this parameter in an IBM environment.	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 187

## PD - Limit of Pages for NATPAGE

---

This Natural profile and session parameter specifies the maximum number of pages (screens) which can be stored at the same time in the Natural system file (FUSER) with the NATPAGE screen-paging utility.

Within a Natural session, the profile parameter PD can be overridden by the session parameter PD.

<b>Possible settings</b>	0 or 1 - 255	Maximum number of pages (screens).
<b>Default setting</b>	50	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	



### Notes:

1. If the number of stored screens exceeds the setting of PD, wrap-around technique is used for the system file, which means that the oldest page is overwritten.
2. For further information on the NATPAGE screen page utility, see the terminal commands %E, %I, %O, %P and %S.



# 188

## PDPSIZE - Size of the Profiler Data Pool

This Natural profile parameter determines the size of the Profiler data pool used by the NaturalONE Profiler and the Profiler utility (see the *Utilities* documentation) in batch mode. The Profiler trace session uses this data pool as shared intermediate storage to transfer traced RDC session records to the monitor session. Storage is allocated by the monitor session during the initialization of the NaturalONE Profiler or the Profiler utility.

<b>Possible settings</b>	100 - 2097151	Size of the Profiler data pool in KB.  Depending on the number of trace records to be transferred, you may have to increase the size value for PDPSIZE to avoid a data pool overflow. An overflow pauses trace recording which can degrade performance of large applications.  You have to restart the monitor session after increasing the size value.
	0	If PDPSIZE=0 is set or if the specified size exceeds the storage space available for the data pool, you can neither use the NaturalONE Profiler nor run the Profiler utility in batch mode.
<b>Default setting</b>	500	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 189

## PECK - PCHECK/ECHECK Error Processing

This Natural profile parameter controls whether a compilation check with the `ECHECK` or `PCHECK` option of the `COMPOPT` system command (see the *System Commands* documentation) terminates after a syntax error is detected in the object source. In addition, `PECK` determines how the syntax errors are reported.

<b>Possible settings</b>	S	Stops when the first syntax error is detected. The cursor is placed in the line that contains the error and the respective error (for example, NAT0935) is issued.
	WS	Same as S above, but additionally clears the message buffer when the compilation starts.
	F	Scans the entire object and places all errors on a stack. The cursor is placed in the line where the first error is detected.  If several errors occur in the same line, a Natural error message appears in this line indicating that inconsistencies were found during the <code>PCHECK/ECHECK</code> validation.  If several errors occur in different lines, the above Natural error message appears in the first line.  All errors accumulated on the stack are listed after the scan is complete.
	WF	Same as F above, but additionally clears the message buffer when the compilation starts.
	WL	Same as L below, but additionally clears the message buffer when the compilation starts.
<b>Default setting</b>	L	Scans the entire object and places all errors on a stack. The cursor is placed in the line where the last error is detected.  If several errors occur in the same line, a Natural error message appears in this line indicating that inconsistencies were found during the <code>PCHECK/ECHECK</code> validation.  If several errors occur in different lines, the above Natural error message appears in the last line.

		All errors accumulated on the stack are listed after the scan is complete.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 190 PGP - Properties for External Programs

---

- PGP Parameter Syntax ..... 520
- NTPGP Macro Syntax ..... 522
- Examples of PGP Parameter ..... 522
- Examples of NTPGP Macros ..... 522

This Natural profile parameter can be used to predefine the properties for external programs. It corresponds to the `NTPGP` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>PGP Parameter Syntax</i> .	
<b>Default setting</b>	OFF	No properties are defined for external programs.
<b>Dynamic specification</b>	yes	The profile parameter PGP can only be specified dynamically. In the Natural parameter module, the macro <code>NTPGP</code> must be used.
<b>Specification within session</b>	yes	Temporary <code>SET CONTROL 'P=value'</code> for each call of the external program.



**Notes:**

1. When calling an external program with the Natural `CALL` statement, there are already several options available by means of a preceding `SET CONTROL` statement (for example, `SET CONTROL 'P=S'`) to request certain programming interface properties for the subsequent `CALL`. With `NTPGP` or `PGP` it is possible to predefine these program properties in the Natural parameter module or dynamically rather than in the Natural application program, which could be error prone
2. To provide `PGP` definitions for different programs, `PGP` or `NTPGP` must be specified multiple times.
3. The terminal command `%P=` applies only to the next call of an external program, and the call options are reset unconditionally on return from the call, whereas the profile parameter `PGP` sets the call option for an external program permanently.
4. If different properties are defined for the same program, by means of profile parameter `PGP` or by a `SET CONTROL 'P=value'` statement, these properties will be merged for this program.

## PGP Parameter Syntax

---

With the dynamic `PGP` parameter, you first specify the program name, and then one or more properties for this program.

```
PGP=(program-name,property-1,property-2,...)
```

Or:

PGP=OFF

**Notes:**

1. The value OFF resets all properties for the program previously defined.
2. To provide PGP definitions for different programs, the profile parameter PGP must be specified multiple times (separated by a comma or a blank).

Syntax Element	Explanation
<i>program-name</i>	The name of the external program which shall have the subsequent properties. Generic names are supported by an ending asterisk.  Example: 'TESTP*'.  <b>Note:</b> The apostrophes must be used for dynamic specification.
<i>property-1</i> <i>property-2</i> ...	The various property values are described in the table below. There is a long and a short form for each property.  <b>Note:</b> As dynamic parameter specification, a property can be reset by a preceding NO, for example, NOS to reset property S.
OFF	PGP=OFF resets all program property definitions.

**Property Values**

Property	Short	Explanation	SET CONTROL
STDL	S	Standard linkage under CICS	P=S
STDLC	SC	Standard linkage simulates EXEC CICS LINK.	P=SC
ROLL	V	Rollout for call in thread environments.	P=V
COMA	C	Pass values in CICS COMMAREA.	P=C
CONT	CC	Pass parameter values in CICS container.	P=CC
LEMAIN	L	The called program is an IBM LE main program.	P=L
LESUB	LS	The called program is an IBM LE subprogram (IBM only) .	P=LS
IMSPCB	I	Pass the IBM IMS/DC PCB address.	P=I
DIGR	D	The called program is a DIGNUS remote subprogram.	P=D
DIGL	DL	The called program is a DIGNUS local subprogram.	P=DL
SUOW	U	SUOW, separate CICS unit of work.	P=U
SUOWB	UT	Separate CICS unit of work tolerate backout.	P=UT
OFF		Clear all properties previously defined (dynamic parameter specification only).	

## NTPGP Macro Syntax

---

With the NTPGP macro in the Natural parameter module, you first specify the name of the external program and then one or more properties for this program.

```
NTPGP program-name,property-1,property-2,...
```



### Notes:

1. The syntax elements of the macro NTPGP correspond to that of profile parameter PGP, see [Syntax Elements](#) and [Property Values](#).
2. The value OFF cannot be set with the macro NTPGP.
3. To provide property definitions for different programs, the macro NTPGP must be specified multiple times.

## Examples of PGP Parameter

---

```
PGP=(TESTPGM1,S)  
PGP=('ABX*',L,NOS)  
PGP=(MYPROG7,OFF,L,STD)
```

## Examples of NTPGP Macros

---

```
NTPGP TESTPGM1,S  
NTPGP ABX*,L  
NTPGP MYPROG,L,STD
```

# 191

## PLOG - Logging of Dynamic Parameters

This Natural profile parameter enables you to print a list of all profile parameters that were specified dynamically at the start of the session.

<b>Possible settings</b>	ON	<p><b>In batch mode:</b></p> <p>At session start, a list of the dynamically specified profile parameters and their settings is written to the output data set CMPLOG. (If CMPLOG is not available, the list is written to the standard output data set CMPRINT.)</p> <p><b>In online mode under TSO:</b></p> <p>At session start, a list of the dynamically specified profile parameters and their settings is written to the output data set CMPLOG. (If CMPLOG is not available, the list is sent to the terminal.)</p> <p><b>In online mode under CICS:</b></p> <p>At session start, a list of the dynamically specified profile parameters and their settings is sent to the terminal.</p>
	OFF	No list of dynamic profile parameters is written.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	<p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. When specified dynamically, the PLOG parameter applies to all subsequent dynamic profile parameters until the next PLOG specification. This allows you to exclude individual parameters from being printed, for example, if their settings contain passwords or other sensitive information that should not be printed.</li> <li>2. All dynamic parameters which are specified between a PLOG=OFF specification and a subsequent PLOG=ON specification are not printed.</li> </ol>
<b>Specification within session</b>	no	



**Notes:**

1. This Natural profile parameter only applies in batch mode, under TSO and under CICS.
2. Printing a list of all profile parameters that were specified dynamically at the start of the session may be useful to ascertain which dynamic profile parameters were actually used, particularly if profile parameters such as `PROFILE` or `SYS` are specified, which in turn “contain” other profile parameters (for a `PROFILE` or `SYS` parameter, the entire string of profile parameters activated by it is listed).

# 192

## PM - Print Mode

---

▪ Profile Parameter PM .....	526
▪ Session Parameter PM .....	526

The following topics are covered below:

## Profile Parameter PM

The Natural profile parameter PM specifies how fields are to be printed or displayed.

<b>Possible settings</b>	C, P, I, R,	PM=C	An alternative character set is to be used. It can be defined by the profile parameters <a href="#">TAB1</a> and <a href="#">TAB2</a> .
	or combinations thereof	PM=P	The primary (standard) character set is to be used.
	CI, CR, PI, PR	PM=I	Specifies inverse, that is, right-to-left direction (for example, for use in Middle Eastern countries). See also <a href="#">Notes</a> .
		PM=R	This resets the PM=I setting to normal (left to right) display direction.
<b>Default setting</b>	PR		
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	yes	Terminal command %V .	
<b>Application programming interface</b>	USR1005N		



**Notes:**

1. PM=I affects any system controlled output screen items, that is, system variables and PF key lines. Moreover, all non-alphanumeric fields, for example, numeric and date are affected. In addition, for Natural Web I/O Interface terminals the field sequence is changed from left to right into right to left. The field inversion routine is supplied as assembler module NATPM in the Natural source library and can be modified in case of need.
2. For detailed information on how to use the setting PM=I, see *Bidirectional Language Support* in the *Unicode and Code Page Support* documentation.

## Session Parameter PM

This session parameter PM is used to indicate how fields are to be displayed.



<b>Possible settings</b>	PM=C	An alternative character set is used (see the module NATPM in the Natural source library).
	PM=D	Defines DBCS-only fields that do not contain shift-out/shift-in characters (see <i>Double-Byte Character Sets</i> in the <i>Operations</i> documentation).
	PM=I	Field values are displayed in inverse direction; that is, from right to left (for example, for use in Middle East countries).
	PM=N	No hardcopy of the display can be made.
<b>Default setting</b>	none	The standard character set is used.
<b>Applicable statements</b>	DEFINE DATA DISPLAY FORMAT INPUT MOVE LEFT/RIGHT JUSTIFIED PRINT WRITE	



**Note:** More than one value may be specified.

### Example:

```
LIMIT 1
  READ EMPLOYEES
  DISPLAY NOTITLE NAME
  DISPLAY NOTITLE NAME (PM=I)
  DISPLAY NOTITLE NAME
  END
```

### Result:

```
NAME
-----
MORENO
          ONEROM
MORENO
```



# 193

## POS22 - Version 2.2 Algorithm for POS System Function

---

This Natural profile parameter is obsolete and only accepted for compatibility reasons.



# 194

## PRINT - Print File Assignments

---

▪ PRINT Parameter Syntax .....	532
▪ NTPRINT Macro Syntax .....	533
▪ Keyword Subparameters for All Environments .....	534
▪ Keyword Subparameters for AM=STD in All Environments .....	539
▪ Keyword Subparameters for AM=STD in z/OS Environments .....	542
▪ Keyword Subparameters for AM=STD in z/VSE Environments .....	544
▪ Keyword Subparameters for AM=STD in BS2000/OSD Environments .....	546
▪ Keyword Subparameters for AM=CICS .....	547
▪ Keyword Subparameters for AM=COMP (Com-plete) .....	548
▪ Keyword Subparameters for AM=SMARTS (Com-plete) .....	548
▪ Keyword Subparameters for AM=IMS .....	549
▪ Keyword Subparameters for DEFINE PRINTER Statement .....	549

This Natural profile parameter specifies the print files to be used during the session. It corresponds to the `NTPRINT` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>PRINT Parameter Syntax</i> .	
<b>Default setting</b>	See the default values of the different keyword subparameters described below. Depending on the access method and the environment, there may be different default settings.	
<b>Dynamic specification</b>	yes	The parameter <code>PRINT</code> can only be specified dynamically. In the Natural parameter module, use the macro <code>NTPRINT</code> .
<b>Specification within session</b>	no	



**Notes:**

1. The old dynamic parameter `PRINTER` can be used as a synonym for `PRINT`.
2. Within a session, up to 31 logical print files (numbered 1 to 31) and the hardcopy print file (Number 0) can be used.
3. The software components for accessing print files in different environments are called access methods. For the duration of a Natural session, each logical print file can be assigned to one access method only. The access method for a print file is determined by the keyword subparameter `AM`.
4. In z/OS under TSO and in batch mode, print files need not be predefined in the JCL. Provided they are defined by subparameter `AM=STD`, they can be allocated dynamically during the session in a Natural program using the `DEFINE PRINTER` statement or the application programming interface `USR2021` (in library `SYSEXT`).
5. See also *Print and Work File Handling with External Data Sets in a Server Environment* in the *Operations* documentation.

## PRINT Parameter Syntax

---

With the `PRINT` parameter, you first specify one or more logical print file numbers, and then several keyword subparameters, which define the characteristics for these print files:

```
PRINT=((print-file-numbers),keyword-subparameter=value,...)
```

Where:

Syntax Element	Description
<i>print-file-numbers</i>	<p>The file numbers must be specified first and enclosed in parentheses:</p> <ul style="list-style-type: none"> <li>■ The numbers can be from 0 to 31.</li> <li>■ They can be specified in any sequence.</li> <li>■ Multiple numbers must be separated from one another by commas or blanks.</li> <li>■ To specify a range of numbers, you can use a hyphen (-).</li> </ul>
<i>keyword-subparameters</i>	<p>The keyword subparameters (for the different environments) are described below.</p> <p>If any previous definition (or default) for the same print file exists, only the values for the specified keyword subparameters are overwritten, all other values remain unchanged.</p>



**Note:** To provide different print file definitions, PRINT can be specified multiple times.

**Examples:**

```
PRINT=((2,12,18),AM=STD,DEST='PRINT**',OPEN=INITOBJ,CLOSE=CMD)
PRINT=((1,3,6-11,15),AM=NAF)
PRINT=((0),AM=STD,DEST=HARDCOPX)
```

## NTPRINT Macro Syntax

With an NTPRINT macro, you first specify one or more logical print file numbers, and then several keyword subparameters which define the characteristics that are to apply to these print files:

```
NTPRINT (print-file-numbers),keyword-subparameter=value,...
```

Where:

Syntax Element	Description
<i>print-file-numbers</i>	<p>The file numbers must be specified first and enclosed in parentheses:</p> <ul style="list-style-type: none"> <li>■ The numbers can be from 0 to 31.</li> <li>■ They can be specified in any sequence.</li> <li>■ Multiple numbers must be separated from one another by commas or blanks.</li> <li>■ To specify a range of numbers, you can use a hyphen (-).</li> </ul>

<i>keyword-subparameters</i>	<p>The keyword subparameters (for the different environments) are described below.</p> <p>If any previous definition (or default) for the same print file exists, only the values for the specified keyword subparameters are overwritten, all other values remain unchanged.</p>
------------------------------	---



**Note:** To provide different print file definitions, NTPRINT can be specified multiple times.

**Examples:**

```
NTPRINT (2,12,18),AM=STD,DEST='PRINT**',OPEN=INITOBJ,CLOSE=CMD
NTPRINT (1,3,6-11,15),AM=NAF
NTPRINT (0),AM=STD,DEST=HARDCOPX
```

## Keyword Subparameters for All Environments

The following keyword subparameters are available for all environments:

[AM](#) | [CCHAR](#) | [DEST](#) | [OPEN](#) | [CLOSE](#) | [ROUTE](#) | [CP](#) | [SHIFT](#)

### AM - Type of Access Method

AM=*value* specifies the type of access method to be used.

Value	Access Method
STD	Standard sequential batch files (batch, TSO, TIAM).
COMP	Com-plete print files.
CICS	CICS transient data or temporary storage.
NAF	Natural Advanced Facilities.
IMS	IMS TM destinations.
PC	Entire Connection.
USER	Third-party vendor print interface.
SMARTS	SMARTS print file.
ESS	Entire System Server.
NOM	Entire Output Management.  <b>Note:</b> Prints to an Entire Output Management container file without using the spool of the operating system. Refer to the <i>Entire Output Management</i> documentation for details.



Value	Access Method
OFF	Unassigned. No automatic assignments if <code>FAMSTD=OFF</code> is set.  <b>Note:</b> <code>PRINT=OFF</code> is equivalent to: <code>PRINT=((1-31)), AM=OFF</code> . It does not affect any of the other keyword subparameter specifications.
0	Unassigned. Automatic assignments if <code>FAMSTD=OFF</code> is set.  This is the default value.



**Notes:**

1. For an online session, all print files to be used have to be assigned to a specific access method.
2. For a batch session, any print files not assigned to a specific access method will be automatically detected and assigned by the standard batch access method (`AM=STD`), provided that they have been predefined in the JCL. See also [FAMSTD - Overwriting of Print and Work File Access Method Assignments](#).
3. `PRINT=((0), AM=xxx)` or `NTPRINT (0), AM=xxx` determines the hardcopy print access method and is equivalent to the profile parameter `HCAM=xxx`.

**CCHAR - Allow Output Control Characters**

`CCHAR=value` allows you to define hexadecimal control characters for print file I/O to be passed through unchanged.

Value	Explanation
<i>a1</i> or ( <i>a1, a2, ...</i> )	A single hex character or a list of hex characters enclosed in brackets can be specified. The hex characters must be within <code>x'01'</code> through <code>x'3F'</code> . A hex character range <i>a1 - a2</i> is allowed instead of a hex character.  There is no default value.
OFF	<code>CCHAR=OFF</code> resets any previous <code>CCHAR</code> definitions.



**Notes:**

1. To avoid screen I/O errors, Natural automatically translates the output control characters `x'01'` through `x'3F'` to '?'. In some cases, however, certain control characters are required for special purposes. These can be specified with `CCHAR`.
2. For the specified print files, the `CCHAR` specification replaces the definitions in the output translation tables `NTTAB`, `NTTAB1` and `NTTABL` as contained in the configuration module `NATCONFIG` or defined by the corresponding dynamic profile parameter or by the corresponding macro in the Natural parameter module.

**Examples:**

CCHAR=17

CCHAR=19-1B

CCHAR=(03-06,0A,1B,3A-3F)

**DEST - External Data Set Name**

DEST=*value* specifies the print destination (1 - 8 characters).

Access Method	Meaning of Keyword Subparameter DEST
AM=STD	<p>DEST is the logical data set name (DDNAME, LINK name, DTF name).</p> <p>If the destination is to be for multiple files, two asterisks (**) have to be specified for the file number. These will be replaced by the corresponding logical file number for each print file. A DEST value including two asterisks must be enclosed in apostrophes when it is used as a dynamic parameter.</p> <p>The default value is DEST='CMPRT**' for z/OS, z/VSE, and DEST='P**' for BS2000/OSD environments.</p> <p>Under z/VSE, only 7-character names are supported.</p>
AM=CICS	<p>There is no default value for print files under CICS. Here, the DEST subparameter is mandatory, that is, CICS print files defined without a valid DEST specification are ignored.</p> <p>The Natural CICS interface also supports a variable (see TERMVAR parameter in the NCIPARM generation macro; &amp;TID is the default) as part of the DEST value which, when being specified, is replaced by the actual CICS terminal ID. See also <i>Natural Print and Work Files under CICS</i> in the <i>TP Monitor Interfaces</i> documentation.</p>
AM=IMS	Specifies the IMS TM destination.



**Notes:**

1. DEST=*value* corresponds to the OUTPUT value of the DEFINE PRINTER statement (and can be overwritten by a DEFINE PRINTER OUTPUT specification).
2. The meaning of this keyword subparameter depends on the access method.
3. PRINT=((0),DEST=*xxx*) or NTPRINT (0),DEST=*xxx* determines the hardcopy print destination and is equivalent to the Natural profile parameter HCDEST=*xxx*.

## OPEN - Time of File Opening

OPEN=*value* specifies when the file is to be opened.

Value	Explanation: The file is opened ...
INIT	for output at session initialization.
OBF	according to the default OPEN value for the different environments (batch, CICS, Com-plete, TSO).
OBJ	when the execution of the first object which accesses the file starts.  This is the general default, except for AM=COMP and AM=IMS.
OBJ1	when the execution of the first object on Level 1 that accesses the file starts. Otherwise, it is opened when it is first accessed.
ACC	when it is first accessed by a statement.  This is the default for AM=COMP and AM=IMS.
INITOBF	for output at session initialization. Any subsequent re-opening of the file sets the default OPEN value for the different environments (batch, CICS, Com-plete, TSO).
INITOBJ	for output at session initialization. Any subsequent re-opening of the file will be performed when the execution of the first object which accesses the file starts.
INITOBJ1	when the execution of the first object on Level 1 that accesses the file starts. Otherwise, it is opened when it is first accessed.
INITACC	for output at session initialization. Any subsequent re-opening of the file will be performed when it is first accessed by a statement.

## CLOSE - Time of File Closure

CLOSE=*value* specifies when the file is to be closed.

Value	Explanation: The file is closed ...
OBJ	either when processing of the object in which it was first accessed is finished or when command mode, NEXT mode or MAINMENU is reached.
CMD	when command mode, NEXT mode or MAINMENU is reached.  This is the default for AM=NAF, AM=COMP and AM=IMS.
FIN	at session end (this is the default for AM=STD).  <b>Note:</b> With CLOSE=FIN, a DEFINE PRINTER statement causes an error if the printer was opened already. A CLOSE PRINTER statement for the printer is ignored.
USER	only if the file is open and one of the following conditions is true: <ul style="list-style-type: none"> <li>■ a CLOSE PRINTER statement is issued,</li> <li>■ a DEFINE PRINTER statement is issued,</li> </ul>

Value	Explanation: The file is closed ...
	■ at session termination.

### ROUTE - Logical Print File Routing

`ROUTE=value` specifies whether logical print file routing is done according to the `OUTPUT` clause of the `DEFINE PRINTER` statement.

Value	Explanation
ON	Print file routing is done. The target print file can be any available print file except PC. This is the default value.
OFF	No print file routing is done.
<i>am</i>	Print file routing is done to printers of the specified access method only. Possible value is any valid print file access method (see subparameter <code>AM</code> described above). PC is not allowed for <i>am</i> .



**Note:** Print file routing means that, if the name defined in the `OUTPUT` clause of a `DEFINE PRINTER` statement denotes a print file destination which is defined by a different logical printer, all print output is routed to this print file. If no printer with the specified name is found, the print output can be routed to any free printer.

### CP - Code Page for Print Output

`CP=value` specifies the code page for the print output.

Value	Explanation
1 - 64 characters.	The name of the desired code page. Any character string is possible, but must be predefined by one of the code page parameters <code>CCSID</code> , <code>CCSN</code> , <code>IANA</code> or <code>ALIAS</code> of the macro <code>NTPAGE</code> in the source module <code>NATCONFIG</code> .



**Notes:**

1. It is assumed that all code page data, for example, Natural sources, contents of A-format fields, etc., are stored in this code page. If no code page is specified with the keyword subparameter `CP`, the code page resulting from the evaluation of the profile parameter `CP` is used.
2. If Natural code page support is disabled (for example, by profile parameter `CP=OFF`), any value specified for this parameter is ignored.

3. See also profile parameter [CP](#) and *Profile Parameters and Macros in the Unicode and Code Page Support* documentation.

### SHIFT – Shift Data Record to the Right

SHIFT=*value* specifies whether the print records are shifted to the right by the number of blanks *nnn*.

Value	Explanation
0 or 1 - 248	The print records are shifted to the right and the specified number of blanks is inserted in front of the record starting with column 1.
0	The print records are not shifted.  This is the default value.



#### Notes:

1. The ASA control character in column 0 is not affected.
2. The specified number of characters at the end of the records is lost due to shift out.

## Keyword Subparameters for AM=STD in All Environments

The following keyword subparameters are available for access method [AM=STD](#) in all environments:

[RECFM](#) | [BLKSIZE](#) | [LRECL](#) | [TRUNC](#) | [PAD](#) | [PADCHRO](#) | [ASA](#) | [STRIP](#)

### RECFM - Default Record Format of Data Set

RECFM=*value* specifies the default record format of the data set.

#### Supported Formats

Value	Format
F	Fixed
V	Variable
U	Undefined
B	Blocked
S	Spanned
A	ASA
M	Machine control characters

### Possible Values or Combinations of Values

Value	Explanation
RECFM=F, RECFM=FA, RECFM=FM, RECFM=FB, RECFM=FBA, RECFM=FBM, RECFM=V, RECFM=VA, RECFM=VM, RECFM=VB, RECFM=VBA, RECFM=VBM, RECFM=VBS, RECFM=VBSA, RECFM=VBSM, RECFM=U, RECFM=UA, RECFM=UM	These values or combinations of values can be specified.
RECFM=VBA	Variable blocked with ASA.  This is the default value.



**Note:** The RECFM specification only applies if no record format is predefined in the JCL or (z/OS only) in the data set DCB.

### BLKSIZE - Default Block Size of Data Set

BLKSIZE=*value* specifies the default block size of the data set.

Value	Explanation
0 or 8 - 32767	Default block size of the data set (in bytes).
1016	This is the default value.



**Note:** The BLKSIZE specification only applies if no block size is predefined in the JCL or (z/OS only) in the data set DCB.

### LRECL - Default Record Length of Data Set

LRECL=*value* specifies the default record length of the data set.

Value	Explanation
0 or 5 - 254	Record length of the data set (in bytes).
0	This is the default value.



**Notes:**

1. This subparameter can be used to check for truncation and padding.
2. For RECFM=V(B) the LRECL value includes a 4-byte record descriptor word.
3. If LRECL=0 is defined, the following applies:
  - With RECFM=V(B), LRECL defaults to the minimum of BLKSIZE-4 and 254.
  - With RECFM=U, LRECL defaults to BLKSIZE.
  - With RECFM=F(B), the maximum record length in the Natural program being executed is taken when the file is opened. If no record length from a program is available when the file is opened,

for example with `OPEN=INIT`, a record length of 132 is taken (plus 1 for ASA or a machine control character and/or plus 4 for a record-descriptor word if the record format is variable).

- The `LRECL` specification only applies if no record length is predefined in the JCL or (z/OS only) in the data set DCB.

### TRUNC - Truncation of Output Records

`TRUNC=value` specifies whether the output records are truncated.

Value	Explanation
ON	Output records that are longer than the record length ( <code>LRECL</code> ) of the data set will be truncated. This is the default value.
OFF	Error NAT1512 will be issued if an output record is longer than the data set record length.

### PAD - Padding of Output Records

`PAD=value` specifies whether the output records are padded or not (applies only to data sets of fixed record length).

Value	Explanation
ON	Output records that are shorter than the record length ( <code>LRECL</code> ) of the data set will be padded with padding characters defined by keyword subparameter <code>PADCHRO</code> . This is the default value.
OFF	Error NAT1510 will be issued if an output record is shorter than the data set record length.

### PADCHRO - Padding Character of Output Records

`PADCHRO=value` specifies the character which is used for padding if `PAD=ON` is defined for the print file.

Value	Explanation
'x'	One character <code>x</code> within single quotes
x'xx'	One hex character <code>xx</code>
' '(blank)	Blank or <code>x'40'</code> This is the default value.

### ASA - Use of ASA Record Format

`ASA=value` specifies whether the ASA record format is used.

Value	Explanation
ON	An ASA character is included in the output print records. Under z/OS, this enforces ASA record format, regardless of the <code>RECFM</code> setting in the DCB or the <code>RECFM</code> subparameter.  This is the default value.
OFF	No ASA character is included in the output print records. Under z/VSE batch access method ( <code>AM=STD</code> ), a valid ASA character must be supplied in column one of the output record if the output file is a spool file, otherwise error NAT1530 will be issued.

### STRIP - Inhibit Removal of Trailing Blanks

`STRIP=value` can be used to inhibit the removal of trailing blanks.

Value	Explanation
ON	Trailing blanks are stripped off.  This is the default value.
OFF	Trailing blanks are not stripped off.



**Note:** Trailing blanks are stripped off for batch sequential print files (access method `AM=STD`) if the data set is defined with variable record format (`RECFM=VB`) to reduce disk space. This may cause problems with subsequent applications accessing this data set, due to the missing blanks. These problems can be avoided by setting `STRIP=OFF`.

### Keyword Subparameters for `AM=STD` in z/OS Environments

---

The following keyword subparameters are available for access method `AM=STD` in z/OS environments:

`REREAD` | `FREE` | `BUFNO` | `DISP` | `VMAX`



## REREAD - Closing of Tape File Data Sets

REREAD=*value* specifies the REREAD option for the closing of the tape file.

Value	Explanation
ON	The REREAD option is set for the CLOSE SVC. This causes the volume to be repositioned to reprocess the data set .  This is the default value.
OFF	The REREAD option is not set for the CLOSE SVC.

## FREE - Data Set De-allocation at File Closure

FREE=*value* specifies whether the data set is de-allocated when the file is closed.

Value	Explanation
ON	The FREE option is set for the CLOSE SVC, which means that the data set is de-allocated when it is closed (and not at step termination).
OFF	The FREE option is <i>not</i> set for the CLOSE SVC.  This is the default value.

## BUFNO - Default Number of z/OS I/O Buffers of Data Set

BUFNO=*value* specifies the default number of z/OS I/O buffers of the data set.

Value	Explanation
0 or 1 - 255	Default number of z/OS I/O buffers of the data set.
0	In this case, z/OS allocates five I/O buffers.  This is the default value.



### Notes:

1. The number of I/O buffers can improve the performance of print file access dramatically. Note that the storage for I/O buffers is allocated below the 16 MB line.
2. The BUFNO specification applies only if the BUFNO parameter is not specified in the JCL for the data set.

### DISP - Open Print File for Modification

DISP=*value* specifies whether the print file is opened for modification.

Value	Explanation
MOD	New records are added at the end of the file.
NOMOD	The print file is rewritten from the start.  This is the default value.



**Note:** This subparameter corresponds to the JCL DD statement parameter DISP=MOD.

### VMAX - Control LRECL for Variable Record Format

VMAX=*value* controls the LRECL setting for an output file with variable record format (RECFM=V).

Value	Explanation
ON	Providing a non-zero BLKSIZE value exists for the file, VMAX=ON sets LRECL=BLKSIZE - 4 for variable record format, regardless of the LRECL setting in the DCB or the LRECL subparameter.
NAT	LRECL is set to the length +4 of the largest record in the application program if this value is less than LRECL in the DCB for the data set.
OFF	LRECL from the DCB for the data set or the LRECL subparameter is used.  This is the default value.

## Keyword Subparameters for AM=STD in z/VSE Environments

---

The following keyword subparameters are available for access method AM=STD in z/VSE environments:

[SYSNR](#) | [LABEL](#) | [REWIND](#)

### SYSNR - Logical VSE SYS Number

SYSNR=*value* specifies the logical VSE SYS number.

Value	Explanation
1 - 99	Logical VSE SYS number.  Default value: <ul style="list-style-type: none"> <li>■ For print files 1 - 31, the SYS number is print file number plus 40.</li> <li>■ For print file 0, that is the hardcopy printer, the default is SYSLST.</li> </ul>

**Example:**

The z/VSE default SYS number for print file 11 is  $11 + 40 \geq \text{SYS051}$ :

```
SYSNR=51
```

**LABEL - Tape Label Processing**

`LABEL=value` specifies the tape label processing.

Value	Explanation
ON	The tape is in standard label format.  This is the default value.
OFF	The tape is unlabeled with front tape mark.
NOTM	The tape is unlabeled without front tape mark.

**REWIND - Action at File Closure**

`REWIND=value` specifies the action to be taken when a tape file is closed.

Value	Explanation
ON	The tape is rewound when the file is closed.  This is the default value.
OFF	The tape is not rewound when the file is closed.
UNLOAD	The tape is unloaded when the file is closed.

## Keyword Subparameters for AM=STD in BS2000/OSD Environments

---

The following keyword subparameters are available for access method `AM=STD` in BS2000/OSD environments:

`DISP` | `FREE`

### DISP - File Open Mode

`DISP=value` specifies the open mode of the file.

Value	Explanation
EXT	The open mode is set to EXTEND.
NOEXT	The open mode is set to the default value OUTPUT. This is the default value.

### FREE - Release Linkname at File Closure

`FREE=value` specifies whether the linkname of the file is released when the destination file is switched over to another one.

Value	Explanation
ON	The linkname is released.
OFF	The linkname is kept.

#### Example:

```
DEFINE PRINTER (1) OUTPUT 'P01'
WRITE (1) 'TEST'
CLOSE (1)
DEFINE PRINTER (1) OUTPUT 'FILE=REPORT01.NEW, LINK=LINKP01'
```

If `FREE=ON` is set, the linkname is released; with `FREE=OFF`, it is kept.

## Keyword Subparameters for AM=CICS

The following keyword subparameters are available for access method `AM=CICS`:

`TYPE` | `DISP`

### TYPE - Type of CICS Storage Medium

`TYPE=value` specifies the type of CICS storage medium to be used.

Value	Explanation
MAIN	Temporary main storage.
AUX	Temporary auxiliary storage.
TD	Transient data.



**Note:** The default value used depends on the setting of subparameter `DEST`. If the `DEST` subparameter value matches a valid CICS transient data queue, the `TYPE` subparameter defaults to `TD`, otherwise `MAIN` will be taken as the default value.

### DISP - CICS Temporary Storage Queue Disposition

`DISP=(value1, value2)` specifies the CICS temporary storage queue disposition.

Value Pair	Explanation
(NEW, KEEP)	The storage queue is deleted when the file is opened. This is the default value.
(NEW, DELETE)	The storage queue is deleted when the file is opened and when it is closed.
(OLD, DELETE)	The storage queue is deleted when the file is closed.
(OLD, KEEP)	The storage queue is not deleted.

#### Example:

```
DISP=(NEW, DELETE)
```



**Note:** The `DISP` specification does not apply to CICS extra-partition transient data queues.

## Keyword Subparameters for AM=COMP (Com-plete)

---

The following keyword subparameter is available for access method [AM=COMP](#) (Com-plete):

DRIVER

### DRIVER - Name of Com-plete Print Driver

DRIVER=*value* specifies the name of the Com-plete print driver to be used.

## Keyword Subparameters for AM=SMARTS (Com-plete)

---

The following keyword subparameter is available for access method [AM=SMARTS](#) (Com-plete):

DEST

### DEST - Logical Printer

DEST=*value* specifies the logical printer.

Value	Explanation
<i>print-server-queue</i>	<p>The environment variable <code>SAG_APS_LPD_xyz</code> defines a logical printer under Com-plete, where <code>xyz</code> is the name of the print server queue.</p> <p>If the environment variable <code>SAG_APS_LPD_xyz</code> exists for the specified DEST, the output is directly routed to that line printer.</p> <p>For more information, see the <i>Complete Initialization and Startup Manual</i>, section <i>Defining Terminals and Printers</i>.</p>
<i>printer-file-name</i>	<p>If no print server queue for that printer is available, DEST specifies a printer file name. It specifies the location of the output file in the file system. The name of the output file is generated from the <code>UserId</code> and a sequence number.</p> <p>Since the DEST clause is restricted to an 8 character maximum, it is useless to define a file with absolute PFS path specification. The name specified in the DEST clause is relative to the print file root directory. The print file root directory is specified with the environment variable <code>NAT_PRINT_ROOT</code>.</p>

**Example:**

```
NAT_PRINT_ROOT=/nat/printer
DEST=printer1
UserId=xyz
```

The first output will be written to file `/nat/printer/printer1/xyz1`.

To specify a file with absolute path definition, the `OUTPUT` clause of the `DEFINE PRINTER` statement must be used.

## Keyword Subparameters for AM=IMS

---

The following keyword subparameters are available for AM=IMS:

[BLKSIZE](#) | [DRIVER](#)

For possible values and further information, see *Support of the Natural WRITE (n) Statement* in the *Natural under IMS TM* part of the *TP Monitor Interfaces* documentation.

### **BLKSIZE - Size of the Print Buffer**

`BLKSIZE=value` specifies the size of the print buffer sent to the IMS TM destination.

### **DRIVER - Name of Natural IMS Print Driver**

`DRIVER=value` specifies the name of the Natural IMS print driver to be used.

## Keyword Subparameters for DEFINE PRINTER Statement

---

With the following keyword subparameters, you can set the default values for the `DEFINE PRINTER` statement options of the same names. When a printer is closed, all `DEFINE PRINTER` statement options are reset to their default values.

[PROFILE](#) | [NAME](#) | [FORMS](#) | [DISP](#) | [COPIES](#) | [CLASS](#) | [PRTY](#)

### **PROFILE - Name of Printer Control Characters Table**

PROFILE=*value* specifies the name of the printer control characters table ([NTCCTAB](#) macro).

### **NAME - Name of Listing**

NAME=*value* specifies the listing name.

### **FORMS - Name of Listing Forms**

FORMS=*value* specifies the listing forms name.

### **DISP - Listing Disposition**

DISP=*value* specifies the listing disposition (HOLD, KEEP, DELETE or LEAVE).

### **COPIES - Number of Copies**

COPIES=*value* specifies the number of copies to be printed (1 - 255).

### **CLASS - Spool Class**

CLASS=*value* specifies the spool class (1 byte).

### **PRTY - Listing Priority**

PRTY=*value* specifies the listing priority (1 - 255).



# 195

## PROFILE - Activate Dynamic Parameter Profile

---

This Natural profile parameter can be used to activate a dynamic parameter profile.

<b>Possible settings</b>	Profile-name or special option, see <i>PROFILE Parameter Syntax</i> .	
<b>Default setting</b>		
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. The parameters defined under this profile are passed to Natural as dynamic profile parameters.
2. You create and maintain these profiles with the SYSPARM utility (described in the *Utilities* documentation).
3. See also profile parameter [FPROF](#), which can be used to specify a system file for parameter profiles (FPROF).

### PROFILE Parameter Syntax

When you invoke Natural with dynamic profile parameters, instead of having to specify a whole string of individual parameters each time you invoke Natural, you can specify the string of parameters once, store this string under a profile name and then invoke Natural with only one dynamic parameter as follows:

PROFILE=*profile-name*

Or:

PROFILE=*special-option*

Where:

Syntax Element	Value	Explanation
<i>profile-name</i>	1 - 8 characters	The name of the profile to be activated.
<i>special-option</i>	AUTO	Natural takes the current TP user ID (as contained in the system variable *INIT-USER) as profile name, which means that the profile defined under the name corresponding to that ID is used.  If no such profile is found, a profile named AUTO is used instead (if available). You can define such an AUTO profile as default profile for users without individual profiles.
	TERMINAL	Natural takes the current terminal ID (as contained in the system variable *INIT-ID) as profile name, which means that the profile defined under the name corresponding to that ID is used.  If no such profile is found, a profile named TERMINAL is used instead (if available). You can define such a TERMINAL profile as default profile for users without individual profiles.
	PROGRAM	Natural takes the name of the program currently executing as Natural (as contained in the system variable *INIT-PROGRAM) as profile name, which means that the profile defined under this name is used.  If no such profile is found, a profile named PROGRAM is used instead (if available). You can define such a PROGRAM profile as default profile for users without individual profiles.

### Location of Parameter Profile

By default, the parameter profile is read from the current FNAT system file.

To read it from a different system file, you can specify the desired database ID (*dbid*), file number (*fnr*), password (*password*) and cipher key (*cipher-key*) after the *profile-name*, or after one of the above special options, as follows:

```
PROFILE=(profile-name,dbid,fnr,password,cipher-key)
```

To ensure that all profile parameters are read from the same system file (other than FNAT), specify the following in the Natural parameter module:

```
PROFILE=(dbid,fnr)
```

**Notes:**

1. If the PROFILE parameter is specified within a parameter module, it is evaluated *after* the other parameters in the parameter module, but *before* any dynamically specified profile parameters are evaluated; this means that parameters specified within the profile can be overridden by individually specified dynamic parameters.
2. To restrict the use of a profile, you can use the profile parameter [USER](#).
3. Unlike other parameters, a PROFILE parameter specification cannot be overwritten by another PROFILE. So you can have multiple parameter profiles which are evaluated all in a sequence.
4. The PROFILE parameter cannot be used with ADARUN MODE=SINGLE.



# 196 PROGRAM - Non-Natural Program Receiving Control after Termination

---

This Natural profile parameter specifies a non-Natural back-end program which is to receive control after the termination of the Natural session.

<b>Possible settings</b>	1 - 8 characters	Non-Natural back-end program.
	numeric value	Setting a numeric value, for example PROGRAM=0, indicates "no back-end processing".  <b>Note:</b> This is particularly relevant when Natural is invoked by a front-end program, because a default may be taken if PROGRAM is blank or not specified; see <i>Front-End Invoked via XCTL</i> in the <i>TP Monitor Interfaces</i> documentation.
	MSG	This additional option determines that the Natural session termination message is issued before Natural passes control to the back-end program. The following syntax applies:  PROGRAM=( <i>program-name</i> ,MSG)  <b>Note:</b> MSG is not evaluated under IMS TM and Com-plete.

	NOMSG	This additional option determines that the Natural session termination message is <i>not</i> issued before Natural passes control to the back-end program. The following syntax applies:  PROGRAM=( <i>program-name</i> , NOMSG )
<b>Default setting</b>	PROGRAM=( , NOMSG )	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	The Natural back-end program can also be specified from within a Natural program by calling the Natural subprogram CMPGMSET, which is provided in the library SYSEXTP.  The additional options MSG and NOMSG cannot be specified from within a Natural program.
<b>Application programming interface</b>	USR4001N (for mainframes)	See <i>SYSEXT - Natural Application Programming Interfaces in the Utilities</i> documentation.
	USR6204N (for all platforms)	

**Notes:**

1. Data for the program specified with the PROGRAM parameter can be supplied with the TERMINATE statement.
2. For the conventions of calling non-Natural back-end programs, see *Back-End Program Calling Conventions* in the *Operations* documentation.

**CICS-Specific Information:**

In addition to back-end programs, the Natural CICS interface also supports back-end transactions which may be specified via RET=XXXX or RTI=XXXX or STR=XXXX instead of a program name, with XXXX being a valid CICS transaction ID.

- RET=XXXX indicates that control has to be passed to CICS together with a return transaction ID by a CICS RETURN TRANSID ('XXXX') command.
- RTI=XXXX indicates that control has to be passed to CICS with a return transaction ID by a CICS RETURN TRANSID ('XXXX') IMMEDIATE command.
- STR=XXXX indicates that a new transaction has to be started by a CICS START TRANSID ('XXXX') TERMID (\*INIT-ID), before relinquishing control via a CICS RETURN command.

**Notes:**

1. Back-end transactions are not supported if you start a Natural session with an EXEC CICS LINK command or a distributed program link (DPL). They are ignored if specified.

2. Return transactions (RET= or RTI=) are only supported for terminal-oriented sessions. They are ignored if specified for asynchronous sessions.

**Examples:**

```
PROGRAM=MYPGM  
PROGRAM=(MYPGM,MSG)  
PROGRAM=(,MSG)
```





# 197

## PS - Page Size for Natural Reports

This Natural profile and session parameter specifies the maximum number of lines per page to be used for Natural reports created with the `DISPLAY` or `WRITE` statement.

<b>Possible settings</b>	1 - 250	Maximum number of lines per page.
	0	The physical page size is to be used. <b>Note:</b> <ol style="list-style-type: none"><li>1. If PS=0 is specified for the first report to be output (Report 0), the physical-device page-size minus 1 will be used.</li><li>2. If PS=0 is specified for Reports 1 - 31, this will cause automatic new-page processing to be inhibited, that is, no automatic page-break processing will be performed.</li></ol>
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT INPUT SET GLOBALS WRITE	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces in the Utilities</i> documentation.



### Notes:

1. When used as a profile parameter, the PS parameter is honored in batch mode only and defines the physical page size.
2. In online mode, the physical page size is always set to the physical screen height.
3. See also *Page Size - PS Parameter* in the *Programming Guide*.
4. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.

# 198

## PSEUDO - CICS Pseudo-Conversational Mode

This Natural profile parameter controls the mode of operation under CICS.



**Note:** When Natural is executing under control of the TP monitor CICS, two modes are possible: conversational and pseudo-conversational.

<b>Possible settings</b>	ON	PSEUDO=ON enables pseudo-conversational mode.  <b>Note:</b> In this mode, a Natural session is a sequence of different transactions. After each output to the terminal, all Natural work areas are saved and the transaction is terminated. When the user responds to a message by pressing ENTER (or any other input key), a new transaction is initiated. The Natural work areas are restored, the terminal input is read and the Natural session is continued. The transaction identification of each following transaction can be set dynamically by calling the subroutine CMTRNSET, which is provided in the library SYSEXTP.
	OFF	PSEUDO=OFF disables pseudo-conversational mode and enables conversational mode.  <b>Note:</b>  1. In conversational mode, a Natural session is one transaction which is active for as long as the Natural session is active.  2. Note for CICS: A specification of PSEUDO=OFF is ignored for Natural server sessions. See <i>Natural Server Sessions under CICS in the Operations</i> documentation.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** For more information, refer to Natural under CICS, section *TYPE - Thread Type for Group* in the *TP Monitor Interfaces* documentation.

# 199

## RCA - Resolve Addresses of Statically Linked Modules

This Natural profile parameter controls the dynamic loading of modules that have been defined as statically linked to the Natural nucleus during initialization of the Natural session.

<b>Possible settings</b>	ON	At Natural startup, the list of all modules that have been defined as statically linked to the Natural nucleus is inspected and a load request is issued for all modules whose addresses are unresolved. If a load request fails, no error message is issued.  <b>Note:</b> The use of RCA=ON is <i>not</i> recommended, as it causes significant processing overhead at Natural startup.
	OFF	No dynamic loading of static non-Natural programs is performed.
	module name or list of module names (see <a href="#">Examples</a> below)	If a single module name or a list of module names is specified, the list of modules that have been defined as statically linked to the Natural nucleus is extended by the specified module(s). A load request is issued for the modules even if they are already linked to the Natural nucleus. This makes it possible to replace modules that have already been linked statically to the Natural nucleus. If a load request fails, an error message is issued.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Use the profile parameter `CSTATIC` to define modules as being statically linked to the Natural nucleus.

2. If the external name of the module to be loaded is different from the internal one that is used by the `CALL` statement, you can use either the profile parameter `RCALIAS` or the macro `NTALIAS` to define which external name is to be used for the load request.
3. Under CICS: A PPT entry has to be defined to allow the load request for module that is to be dynamically loaded. Statically linked modules are called using standard linkage conventions rather than `EXEC CICS LINK` requests.

### Examples

For a single module name, you may specify:

```
RCA=module-name
```

In a list of module names, each module name must be separated from the next by a comma and the list must be enclosed within parentheses:

```
RCA=(module-name1, module-name2, module-name3)
```

# 200 RCALIAS - External Name Definition for Statically

## Linked Modules

---

- RCALIAS Parameter Syntax ..... 566
- NTALIAS Macro Syntax ..... 567
- Example of RCALIAS Parameter ..... 567
- Examples of NTALIAS Macros ..... 567

This Natural profile parameter can be used to define the external names of modules defined by profile parameter `RCA` as being statically linked to the Natural nucleus and requested for dynamic loading during the initialization of a Natural session. `RCALIAS` corresponds to the `NTALIAS` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">RCALIAS Parameter Syntax</a> .	
<b>Default setting</b>	OFF	See <a href="#">RCALIAS Parameter Syntax</a> .
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTALIAS</code> is used instead.
<b>Specification within session</b>	no	

## RCALIAS Parameter Syntax

The parameter syntax of `RCALIAS` is as follows:

```
RCALIAS=(internal-module-name,external-module-name,internal-module-name,external-module-name)
```

Or:

```
RCALIAS=OFF
```

Where:

Syntax Element	Value	Explanation
<i>internal-module-name</i>	1 - 12 characters.	The internal name of the module (used by the <code>CALL</code> statement) that must also be defined by the profile parameter <code>RCA</code> or <code>CSTATIC</code> (only if <code>RCA=ON</code> ).
<i>external-module-name</i>	1 - 12 characters.	The corresponding external alias name for the load request during session initialization.
-	OFF	No external names for modules defined by profile parameter <code>RCA</code> as being statically linked to the Natural nucleus are defined.



**Note:** With the profile parameter `RCALIAS` you can specify multiple name pairs; see [Example of RCALIAS Parameter](#).



## NTALIAS Macro Syntax

The NTALIAS macro is specified as follows:

```
NTALIAS internal-module-name,external-module-name
```

Where:

Syntax Element	Value	Explanation
<i>internal-module-name</i>	1 - 12 characters.	The internal name of the module (used by the CALL statement) that must also be defined by the profile parameter <a href="#">RCA</a> or <a href="#">CSTATIC</a> (only if RCA=ON).
<i>external-module-name</i>	1 - 12 characters.	The corresponding external alias name for the load request during session initialization.



### Notes:

1. A separate NTALIAS macro must be specified for each name pair; see [Examples of NTALIAS Macros](#).
2. The value OFF cannot be specified with the NTALIAS macro; it can only be specified dynamically with the profile parameter RCALIAS.

## Example of RCALIAS Parameter

```
RCA=(MODULE1,MODULE2),RCALIAS=(MODULE1,ALIAS1,MODULE2,ALIAS2)
```

## Examples of NTALIAS Macros

```
NTALIAS MODULE1,ALIAS1
NTALIAS MODULE2,ALIAS2
```



# 201 RCFIND - Handling of Response Code 113 for FIND

## Statement

---

This Natural profile parameter specifies the action to be taken if Adabas Response Code 113 (requested ISN not found) is returned during the execution of a `FIND` statement processing loop.

<b>Possible settings</b>	ON	Response Code 113 causes the program to be terminated.
	OFF	Response Code 113 will be ignored, and processing of the <code>FIND</code> loop will continue by reading the next record.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 202

## RCGET - Handling of Response Code 113 for GET

### Statement

---

This Natural profile parameter specifies the action to be taken if Adabas Response Code 113 (requested ISN not found) is returned during the execution of a GET statement.


<b>Possible settings</b>	ON	Response Code 113 causes the program to be terminated.
	OFF	Response Code 113 will be ignored, the system variable *ISN will be set to 0, and processing will continue.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 203 RDACT - (Internal Use)

---

This parameter is reserved for internal use by Natural.

 **Caution:** Do not change its setting.





# 204

## RDC - Configure the Natural Data Collector

---

▪ RDC Parameter Syntax .....	576
▪ NTRDC Macro Syntax .....	577
▪ Keyword Subparameters .....	577
▪ Example of RDC Parameter .....	580
▪ Example of NTRDC Macro .....	580

This Natural profile parameter can be used to configure the Natural Data Collector and its trace recording function, which is used by the SYSRDC utility and the Profiler utility. It corresponds to the `NTRDC` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">RDC Parameter Syntax</a> .	
<b>Default setting</b>	OFF	See <a href="#">RDC Parameter Syntax</a> and <a href="#">Keyword Subparameters</a> .
<b>Dynamic specification</b>	yes	The parameter RDC can be specified dynamically only. In the Natural parameter module, use the macro <code>NTRDC</code> .
<b>Specification within session</b>	yes	See <a href="#">Calling the CMRDC Interface</a> to start or stop the trace recording and to select the events (see also the keyword subparameter <code>EVENT</code> ).

The following topics are covered below:

## RDC Parameter Syntax

The RDC parameter is specified as follows:

```
RDC=(ON,keyword-subparameter=value,keyword-subparameter=value,...)
```

Or:

```
RDC=OFF
```

Where:

Value	Explanation
ON	The trace recording is started automatically during Natural session start.
OFF	The user must start trace recording by one of the means described in <i>Activating the Natural Data Collector</i> in the <i>SYSRDC Utility</i> documentation or in the <i>Profiler Utility</i> documentation.  This is the default value.
<i>keyword-subparameter</i>	See <a href="#">Keyword Subparameters</a> .



**Note:** If specified, ON or OFF must be the first value.

## NTRDC Macro Syntax

The NTRDC macro is specified as follows:

```
NTRDC ON, *
      EVENT=value, *
      EXIT=value, *
      FNAT=value, *
      SIZE=value
```

Or:

```
NTRDC OFF
```

See [Keyword Subparameters](#).

For a description of the values ON and OFF, see [RDC Parameter Syntax](#).

## Keyword Subparameters

[EVENT](#) | [EXIT](#) | [FNAT](#) | [SIZE](#)

### EVENT - Natural Data Collector Events to be Recorded

EVENT=(*value*) determines the Natural Data Collector events to be recorded in the Natural Data Collector buffer.

Value	Explanation
( <i>event</i> , <i>event</i> ,...)	<p>Each event can be one or two characters long. Only the specified events are recorded.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. For information on the event codes, see <i>Data-Collecting Events</i> in the <i>SYSRDC Utility</i> documentation.</li> <li>2. When only one value is specified, the enclosing brackets can be omitted.</li> <li>3. If only one character is specified but there are more events beginning with this character, then all these events are recorded. For example, EVENT=P means that the events PL, PS and PT are recorded; that is, the definition is equivalent to EVENT=(PL,PS,PT).</li> </ol>

Value	Explanation
ALL	All events are recorded, provided that the Natural Data Collector buffer was defined properly.  This is the default value.

**Notes:**

1. This definition can be replaced within the Profiler utility or by using `CALL 'CMRDC' 'T'` in any Natural program.
2. For further information, see *Profiler Utility* and *Calling the CMRDC Interface* in the *SYSRDC Utility* documentation.

**EXIT - Define Natural Data Collector User Exits**

`EXIT=(value)` is used to define user exits for the Natural Data Collector of the SYSRDC utility and, optionally, a work area size for each user exit.

Value	Explanation
<code>(name, name, ...)</code>	<code>name</code> is the name of the user exit.
or	There is no default.
<code>(name, size, name, size, ...)</code>	Optionally, the <code>size</code> of the exit work area can be specified after the exit name.  Possible size values: 400 - 32760.  The default size value is 400.

**Notes:**

1. If linked, the exit gets control from the Natural Data Collector at certain points within Natural. Specific session information is passed to the exits.
2. If the subparameter `EXIT` is specified dynamically, the exits must be defined in the profile parameter `CSTATIC` or `RCA` (`RCA` can also be specified dynamically).
3. As an alternative to this keyword subparameter, you can use the equivalent Natural profile parameter `RDCEXIT`.
4. For details, refer to *User Exits for External Monitoring/Accounting* in the *SYSRDC Utility* documentation.

**Example:**

```
EXIT=(MYEXIT,2000,RDCEX1)
```

**FNAT - Trace Recording in the Natural System File**

FNAT=*value* controls the trace recording while Natural system file programs are executing.

Value	Explanation
ON	Trace recording when running in the Natural system file.
OFF	No trace recording in the Natural system file.  This is the default value.

**SIZE - Size of the Natural Data Collector Buffer**

SIZE=*value* specifies the size of the Natural Data Collector buffer, which is used by the SYSRDC utility and the Profiler utility, and it controls the trace recording function of the Natural Data Collector.

Value	Explanation
0 or 2 - 128	Buffer size (in KB). <ul style="list-style-type: none"> <li>■ To activate the Natural Data Collector (without trace recording), you specify SIZE=2.</li> <li>■ To also activate the trace recording, set SIZE to a value greater than 2.</li> <li>■ The Profiler utility needs a buffer size greater than 2 to activate the trace recording.</li> <li>■ If the requested space is not available, the Natural Data Collector cannot be used.</li> </ul>
0	Deactivates the Natural Data Collector.  This is the default value.



**Note:** As an alternative to this keyword subparameter, you can use the equivalent Natural profile parameter [RDCSIZE](#).

## Example of RDC Parameter

---

```
RDC=(ON,EVENT=(D,P,U),SIZE=80,FNAT=ON)
```

## Example of NTRDC Macro

---

```
NTRDC ON, *  
      EVENT=(D,P,U), *  
      SIZE=80, *  
      FNAT=ON
```

# 205

## RDCEXIT - Define Natural Data Collector User Exits

This Natural profile parameter is used to define user exits for the Natural Data Collector of the SYSRDC utility and, optionally, a work area size for each exit.

RDCEXIT can only be specified dynamically. In the Natural parameter module, you need to use the equivalent macro [NTRDC](#) and its subparameter [EXIT](#) instead.

<b>Possible settings</b>	See <a href="#">RDCEXIT Parameter Syntax</a> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	<b>Note:</b> To dynamically specify RDCEXIT, the exits must be defined in the profile parameters <a href="#">CSTATIC</a> or <a href="#">RCA</a> ( <a href="#">RCA</a> can also be specified dynamically). Optionally, the size of the exit work area can be specified after the exit name.
<b>Specification within session</b>	no	



### Notes:

1. Alternatively, you can use the equivalent Natural subparameter [EXIT](#) of profile parameter [RDC](#) or macro [NTRDC](#).
2. If linked, the exit gets control from the Natural Data Collector at certain points within Natural. Specific session information is passed to the exits. For details, refer to *User Exits for External Monitoring/Accounting* in the *SYSRDC Utility* documentation.

**RDCEXIT Parameter Syntax**

```
RDCEXIT=(name,name,...)
```

Where *name* is the name of the user exit. In the Natural parameter module, the specified exit names will automatically be appended to the list of specifications contained in the profile parameter [CSTATIC](#).

There is no default value.

Or:

Optionally, the *size* of the exit work area can be specified after the exit name.

```
RDCEXIT=(name,size,name,size,...)
```

Possible *size* values: 400 - 32760.

The default *size* value is 400.

**Example:**

```
RDCEXIT=(MYEXIT,2000,RDCEX1)
```



# 206

## RDCSIZE - Size of Buffer for the Natural Data Collector

This Natural profile parameter specifies the size of the Natural Data Collector buffer, which is used by the SYSRDC utility and the Profiler utility, and it controls the trace recording function of the Natural Data Collector.

<b>Possible settings</b>	2 - 128	Buffer size (in KB). <ul style="list-style-type: none"><li>■ To activate the Natural Data Collector (without trace recording), you specify RDCSIZE=2.</li><li>■ To also activate the trace recording, set RDCSIZE to a setting greater than 2.</li><li>■ The Profiler utility needs a buffer size greater than 2 to activate the trace recording.</li><li>■ Automatic activation of the trace recording function during session initialization takes place only if profile parameter RDC or macro NTRDC is set to ON.</li><li>■ If the requested space is not available, the Natural Data Collector cannot be used.</li></ul>
	0	Deactivates the Natural Data Collector.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. As an alternative, you can use the equivalent Natural subparameter SIZE of profile parameter RDC or macro NTRDC.

2. Alternatively, you can specify the `RDCSIZE` value in Natural profile parameter `DS` or macro `NTDS` to specify the size of the buffer.
3. For further information, see *Activating the Natural Data Collector* in the *SYSRDC Utility* documentation.

# 207

## RDNODE - (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 208

## RDPORT - (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 209

## READER - z/VSE System Logical Units for Input

---

This Natural profile parameter specifies the z/VSE system logical units which are to be used by Natural for input.

<b>Possible settings</b>	See <i>READER Parameter Syntax</i> .	
<b>Default setting</b>	See <i>READER Parameter Default Setting</i> .	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** Overwriting of a system logical unit number only applies if the relevant file is a card file.

### READER Parameter Syntax

```
READER=(n,device,...)
```

Where:

Syntax Element	Value/Explanation
<i>n</i>	0 for CMSYNIN. 1 for CMOBJIN
<i>device</i>	Either SYSRDR or SYSIPT.

### READER Parameter Default Setting

The default setting is:

READER=(0,SYSRDR,1,SYSIPT)



**Notes:**

1. By default, the primary input stream (CMSYNIN) is read from SYSRDR and the input stream (CMOBJIN) is read from SYSIPT, if required.
2. If CMSYNIN or CMOBJIN are disk or tape files, the associated READER subparameter is ignored.



# 210

## RECAT - Dynamic Recataloging

---

This Natural profile parameter specifies the action to be taken if Natural detects an inconsistency in the global data area definition as defined in the program currently being executed; that is, the global data area in the program does not correspond to the definition of the global data area currently in use.

<b>Possible settings</b>	ON	An error message is issued if an inconsistency in a program and/or global data area is detected.  If the adjusted object invokes an object from a steplib library that also has to be adjusted, the object from the steplib library will be copied to the library of the invoking object. Natural automatically adjusts the object and disables the system commands CATALOG and SAVE. RECAT=ON is not possible for programs cataloged with the Natural Optimizer Compiler.
	OFF	Natural issues an error message.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See SYSEXT - <i>Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



# 211

## REINP - Issue Internal REINPUT Statement for Invalid

### Data

---

This Natural profile and session parameter can be used to prevent an internal REINPUT for invalid data.

<b>Possible settings</b>	ON	An internal REINPUT statement is issued when invalid data have been entered.
	OFF	An internal REINPUT statement is not issued when invalid data have been entered.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



#### Notes:

1. By default, Natural automatically issues an internal REINPUT statement if invalid data have been entered in response to an INPUT statement. With this parameter, you can switch this mechanism off. This will allow you to handle such input errors yourself in your application.
2. Within a Natural session, the profile parameter REINP can be overridden by the session parameter REINP.



# 212

## RELO - Storage Thread Relocation

This Natural profile parameter controls the relocation of the Natural thread after a terminal I/O in a thread environment (CICS, Com-plete, IMS TM, *openUTM* and Natural as a Server).

<b>Possible settings</b>	ON	The Natural thread and all the buffers contained therein can be relocated to another storage area if the original storage area has been occupied by another user after a terminal I/O.
	OFF	No relocation is performed. The Natural thread and all the buffers therein remain located at the same virtual address after the terminal I/O.  <b>Note:</b> This setting applies to CICS, Com-plete and server environments only. In all other thread environments, Natural cannot guarantee that the thread remains located at the same address.
	FORCE	This will force a relocation of the Natural thread and all the buffers contained therein to another storage area. This can be useful for testing purposes in some environments.  <b>Note:</b> This setting does not apply under <i>openUTM</i> .
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### Notes for CICS:

- When using `TYPE=GETM` threads under CICS, `RELO=OFF` has the same effect as the `PSEUDO=OFF` setting of the `PSEUDO` profile parameter. See also `TYPE` (thread type for group) in the section *Natural under CICS* in the *TP Monitor Interfaces* documentation.
- A specification of `RELO=OFF` is ignored for *Natural Server Sessions under CICS* using `TYPE=GETM` threads.



# 213

## RNCONST - Renumber Line Numbers in Constants

---

This Natural profile parameter can be used to renumber the line number references in alphanumeric and Unicode constants within a Natural source. See also *Renumbering of Source-Code Line Number References* in the *Programming Guide*.

<b>Possible settings</b>	ON	The line number references within alphanumeric and Unicode constants are renumbered.
	OFF	The line number references within alphanumeric and Unicode constants are not renumbered. They remain as they are.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	no	
<b>Specification within session</b>	no	
<b>Applicable statements</b>	none	
<b>Applicable command</b>	RENUMBER	



**Note:** The setting of RNCONST affects the execution behavior of the RENUMBER system command.





# 214 RFILE - File for Recordings

---

This Natural profile parameter specifies where recordings (that is, the data recorded by the Recording function) are stored.

<b>Possible settings</b>	SPAD	Recordings will be stored in the scratch-pad file. (If no scratch-pad file is defined, the recordings will be stored in the system file FUSER.)
	FUSER	Recordings will be stored in the system file FUSER.
	FNAT	Recordings will be stored in the system file FNAT.
<b>Default setting</b>	SPAD	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** For details on the Recording function, see *Recording Utility* in the *Utilities* documentation.



# 215

## RI - Release ISNs

This Natural profile parameter specifies whether ISNs (internal sequence numbers) for records which were read and placed in hold status but were not updated are to be retained in hold status.

<b>Possible settings</b>	ON	Natural releases the ISN of each record which has been placed in hold status but was not updated (for example because the record was rejected as a result of a WHERE clause or an ACCEPT/REJECT statement). This reduces the number of ISNs which are contained in the hold queue.  <b>Note:</b> This may, however, cause additional performance overhead as an Adabas call is required for each ISN released.
	OFF	The ISN of each record which has been placed in hold status is <i>not</i> released until the end of the transaction.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See SYSEXT - <i>Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



**Note:** In nested processing loops, a record which due to RI=ON is released in an inner processing loop is no longer kept in hold status for any outer loop.



# 216

## RJESIZE - Initial Size of NATRJE Buffer

---

This Natural profile parameter specifies the initial size of the NATRJE buffer.

<b>Possible settings</b>	1 - 2097151	Buffer size in KB. <b>Note:</b> If the initial size is not sufficient, Natural automatically increases (repeatedly, if necessary) the buffer size in increments of 8 KB.
	0	Disables the NATRJE utility.
<b>Default setting</b>	8	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. With the NATRJE utility (described in the *Utilities* documentation), JCL jobs can be collected and then submitted all at once. RJESIZE is used to set the initial size of the buffer which holds the JCL jobs before they are submitted.
2. Alternatively, you can use the equivalent Natural profile parameter DS or macro NTDS to specify the size of the buffer.



# 217

## RM - Retransmit Modified Fields

---

This Natural profile parameter controls the retransmission of modified fields.

<b>Possible settings</b>	ON	Natural always sends back all modified fields.
	OFF	Natural sends back modified fields only if they have been changed.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Some TP monitors translate input data automatically to upper-case characters.
2. As Natural's screen optimization only retransmits modified data back to the screen, the TP-monitor translation may cause input for a field which has been modified not to be retransmitted.





# 218

## ROSY - Read-Only Access to System Files

This Natural profile parameter disables modifications on the Natural system files [FNAT](#), [FUSER](#), [FDIC](#), and [FSEC](#).

<b>Possible settings</b>	ON	No data can be written to, modified on or deleted from the system files. Natural issues an error message instead of performing any action that would modify any of these system files.
	OFF	Data can be written to, modified on and deleted from the system files.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If your system files are specified as read-only (`ROSY=ON`), the Natural utilities/functions Recording and NATPAGE cannot be used, because they write data to the Natural system files FNAT and/or FUSER.
2. Therefore, it is recommended that you allocate and use a so-called scratch-pad file to hold these temporary data. The scratch-pad file is optional and must be defined as recoverable by using the macro `NTLFILE` or the profile parameter `LFILE`. The above functions then will write their data to this file rather than to the system files FNAT and/or FUSER.
3. With `ROSY=OFF`, a scratch-pad file should also be defined if you use the Recording and NATPAGE functions with database transaction logic, as that might lead to unpredictable results with FNAT/FUSER.
4. If a system file is specified as read-only (RO Option) in the corresponding profile parameter `FNAT`, `FUSER` or `FSEC`, it is not possible to override this setting by setting `ROSY=OFF`, in order to enable modifications or updates on the affected write-protected system file.



# 219

## RPC - Remote-Procedure-Call Settings

---

▪ RPC Parameter Syntax .....	610
▪ NTRPC Macro Syntax .....	610
▪ Keyword Subparameters for Client and Server .....	611
▪ Keyword Subparameters for Client Only .....	614
▪ Keyword Subparameters for Server Only .....	619
▪ RPC Parameter Example .....	628
▪ NTRPC Macro Example .....	628

This Natural profile parameter is used to control the handling of Natural RPC. It corresponds to the macro `NTRPC` in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">RPC Parameter Syntax</a> .	
<b>Default setting</b>	none	See:  <a href="#">Keyword Subparameters for Client and Server</a> <a href="#">Keyword Subparameters for Client Only</a> <a href="#">Keyword Subparameters for Server Only</a>
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTRPC</code> is used instead.
<b>Specification within session</b>	no	

The following topics are covered below:



**Note:** For information on Natural RPC, see the *Natural RPC (Remote Procedure Call)* documentation and *Setting Up a Natural RPC Environment*.

## RPC Parameter Syntax

---

The parameter syntax of RPC is as follows:

```
RPC=(keyword-subparameter=value,keyword-subparameter=value,...)
```

For names and values of *keyword-subparameter*, see [Keyword Subparameters for Client and Server](#), [Keyword Subparameters for Client Only](#) and [Keyword Subparameters for Server Only](#).

## NTRPC Macro Syntax

---

On the client side, the syntax of the `NTRPC` macro in the Natural parameter module is as follows:

```
NTRPC ACIVERS=value, *
      AUTORPC=value, *
      COMPR=value, *
      CPRPC=value, *
      DFS=value, *
      MAXBUFF=value, *
      RDS=value, *
      RPCSDIR=value, *
      RPCSIZE=value, *
      SERVER=value, *
```

```

TIMEOUT=value, *
TRYALT=value

```

On the server side, the syntax of the NTRPC macro in the Natural parameter module is as follows:

```

NTRPC ACIVERS=value, *
      CPRPC=value, *
      LOGONRQ=value, *
      MAXBUFF=value, *
      NTASKS=value, *
      RPCSIZE=value, *
      RPCUCT=value, *
      SERVER=value, *
      SRVCMIT=value, *
      SRVNAME=value, *
      SRVNODE=value, *
      SRVTRY=value, *
      SRVTERM=value, *
      SRVUSER=value, *
      SRVWAIT=value, *
      TRACE=value, *
      TRANSP=value

```

See [Keyword Subparameters for Client and Server](#), [Keyword Subparameters for Client Only](#) and [Keyword Subparameters for Server Only](#).

## Keyword Subparameters for Client and Server

The following keyword subparameters are available for both client and server:

[ACIVERS](#) | [CPRPC](#) | [MAXBUFF](#) | [RPCSIZE](#) | [SERVER](#)

### ACIVERS - Define API Version for Use with EntireX Broker ACI

This keyword subparameter is obsolete and ignored on z/OS and z/VSE.

`ACIVERS=value` specifies the API version to be used for the ACI functions of the EntireX Broker.

The EntireX Broker stub in use as well as the called EntireX Broker must support the API version defined here. Refer to the EntireX documentation for the supported API versions. The setting of `ACIVERS` enables special features of the EntireX Broker, depending on the API version you are using. For details, see *Setting Up an EntireX Broker Access* in the *Natural RPC (Remote Procedure Call)* documentation.

On z/OS and z/VSE platforms, the highest API version supported by the used EntireX Broker stub and the called EntireX Broker are determined automatically.

<b>Possible settings</b>	1 - 9	Single-digit number, identifying the API version.  <b>Note:</b> The higher the version, the more features are available. For details, see <i>Set the API Version</i> in the <i>Natural RPC (Remote Procedure Call)</i> documentation.
<b>Default setting</b>	2	API Version 2 is used.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### CPRPC - Define Code Page Name

CPRPC=*value* specifies the name of the code page used by the EntireX Broker.



**Note:** Currently, it applies only to the Natural RPC facility when the transport protocol ACI (that is EntireX Broker) is used.

<b>Possible settings</b>	1 - 40 characters	Valid code page name of EntireX Broker.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Notes:**

1. For information on the EntireX Broker, refer to the section about Software AG's Internationalization in the EntireX Broker documentation.
2. See also *Unicode and Code Page Support, Configuration and Administration of the Unicode/Code Page Environment* and *Profile Parameters and Macros*.

### MAXBUFF - Default Buffer Size

MAXBUFF=*value* specifies the default buffer sizes in a Natural RPC environment.

<b>Possible settings</b>	1 - 2097147, but less than or equal to RPCSIZE= <i>value</i> - 4	Default buffer size in KB.  The default buffer size must be equal to or less than the value (minus 4) specified with the keyword subparameter <i>RPCSIZE</i> (for the server side, see <a href="#">Dependency on Number of Parameters on Server Side</a> ).
	0	No buffer is allocated.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	

<b>Specification within session</b>	no	
-------------------------------------	----	--

**Notes:**

1. On the server side, `MAXBUFF` determines the size of the buffer provided by the server to receive the client request and send back the result. The buffer must be large enough to hold the largest data area received by all client requests and all results sent back to the client. If the size of the buffer is too small for a request, a temporary buffer with the required size is allocated and used for this request. For further information, see *Interface Objects and Automatic RPC Execution* in the *Natural RPC (Remote Procedure Call)* documentation.
2. On the client side, `MAXBUFF` determines the size of the buffer provided for the execution of Natural RPC calls. This buffer is used to build the client request and receive the result from the server. The buffer must be large enough to hold the largest data area received by all client requests and all results sent back to the client. If the size of the buffer is too small for a request, a temporary buffer with the required size is allocated and used for this request.
3. On the client side, you need not specify `MAXBUFF` if you use an interface object generated with the `SYSRPC` utility and `COMPAT NONE`, and if the parameters neither contain dynamic fields, nor X-arrays or group structures.
4. The size of the data exchanged between the client and server is provided by the **Interface Object Generation** function of the `SYSRPC` utility.

**Dependency on Number of Parameters on Server Side**

On the server side, the difference between `RPCSIZE` and `MAXBUFF` depends on the maximum number of parameters  $n$  in the PDA and can be calculated as follows:

- If group structures are present:

$$\text{MAXBUFF} = \text{RPCSIZE} - (3 + n/10)$$

- If no group structures are present:

$$\text{MAXBUFF} = \text{RPCSIZE} - (3 + n/20)$$

Example:

If  $n=100$  and `RPCSIZE=128`, then `MAXBUFF=120`.

### RPCSIZE - Size of Buffer Used by Natural RPC

RPCSIZE=*value* specifies the size of the buffer used by the Natural RPC.

<b>Possible settings</b>	1 - 2097151	Buffer size in KB.  <b>Note:</b> If the specified size is not large enough, the buffer will be increased on request.
	0	Natural RPC cannot be used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### SERVER - Start Natural Session as an RPC Server Session

SERVER=*value* specifies whether or not the Natural session will be started as an RPC server session.

<b>Possible settings</b>	ON	The Natural session will be started as an RPC server session.
	OFF	The Natural session will not be started as an RPC server session.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

## Keyword Subparameters for Client Only

---

The following keyword subparameters are available for the client only:

[AUTORPC](#) | [COMPR](#) | [DFS](#) | [RDS](#) | [RPCSDIR](#) | [TIMEOUT](#) | [TRYALT](#)



**Note:** See also *Set the RPC Client-Specific Natural Parameters* in the *Natural RPC (Remote Procedure Call)* documentation.



## AUTORPC - Automatic Natural RPC Execution

`AUTORPC=value` determines whether or not Natural RPC will automatically try to execute a subprogram remotely (on the server side) which was not found locally (on the client side).

<b>Possible settings</b>	ON	Natural RPC will automatically try to execute it remotely.
	OFF	Natural RPC will not automatically try to execute it remotely.  <b>Note:</b> With <code>AUTORPC=OFF</code> , you can execute <code>CALLNAT</code> s remotely using interface objects.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	At runtime, this value can be overwritten using the <b>Parameter Maintenance</b> function of the <code>SYSRPC</code> utility.



**Note:** If you want to use a remote `CALLNAT` statement to execute a subprogram on an EntireX RPC server, we strongly recommend that you set `AUTORPC=OFF` and use an interface object. For details, see *Interface Objects and Automatic RPC Execution in the Natural RPC (Remote Procedure Call)* documentation.

## COMPR - Set RPC Buffer Compression

`COMPR=value` sets the RPC buffer compression.

<b>Possible settings</b>	0	No compression will be performed.
	1	The send buffer contains modifiable fields and output fields and the format buffer. The reply buffer contains modifiable fields and input fields.
	2	Same as <code>COMPR=1</code> , additionally the reply buffer also contains the format buffer.
<b>Default setting</b>	1	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	At runtime, this value can be overwritten using the <b>Parameter Maintenance</b> function of the <code>SYSRPC</code> utility.

`COMPR` is effective only, if the automatic Natural RPC execution is used (`AUTORPC=ON`) and the `CALLNAT` is executed without an interface object. If an interface object is used, the compression has already been set during interface object generation. For details, see *Using Compression in the Natural RPC (Remote Procedure Call)* documentation.

### DFS - Specify RPC Client's Default Server Address

DFS=*value* defines an RPC default server address by specifying up to 5 positional subparameters.

<b>Possible settings</b>	See <i>DFS Subparameter Syntax</i> .	
<b>Default setting</b>	none	See <i>DFS Subparameter Syntax</i> .
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	At runtime, this value can be overwritten using the Natural application programming interface USR2007N.
<b>Application programming interface</b>	USR2007N	See <i>Application Programming Interfaces for Use with Natural RPC</i> in the <i>Natural RPC (Remote Procedure Call)</i> documentation and <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.

DFS determines the server name, the server node, the logon indicator and the transport protocol. The default server address will be used only if no appropriate server is found in the service directory. For further information, see *Specifying RPC Server Addresses* in the *Natural RPC (Remote Procedure Call)* documentation.

#### DFS Subparameter Syntax

The DFS syntax is as follows:

```
DFS=(server-name,server-node,logon-indicator,transport-protocol-name,service-directory-indicator)
```

Where:

Syntax Element	Value	Explanation
<i>server-name</i>	1 - 32 characters	Valid server name. See also the keyword subparameter <i>SRVNAME</i> .  There is no default, the value must be specified.
<i>server-node</i>	1 - 192 characters	Node name. See also the keyword subparameter <i>SRVNODE</i> .  There is no default, the value must be specified.
<i>logon-indicator</i>	L	The client initiates a Natural logon to the server with the library name of the current library on the client. On Windows platforms: Instead of specifying L, check the selection box.
	(blank)	Blank means that no server logon will be executed. If nothing is specified, this is the default.
<i>transport-protocol-name</i>	ACI	The transport protocol to be used. ACI is the only possible value and the default.

Syntax Element	Value	Explanation
<i>service-directory-indicator</i>	SERVDIR	A service directory must be present before the keyword subparameter DFS is evaluated.
	NOSERVDIR	No service directory is used before the keyword subparameter DFS is evaluated; that is, a service directory needs not be available on the client side.  If nothing is specified, SERVDIR is the default.

## RDS - Define Remote Directory Server

RDS=*value* allows you to define up to 10 remote directory servers in a Natural RPC environment. For each remote directory server, you can specify up to 5 positional subparameters.

Possible settings	See <a href="#">RDS Subparameter Syntax</a> .	
Default setting	none	See <a href="#">RDS Subparameter Syntax</a> .
Dynamic specification	yes	
Specification within session	no	

### RDS Subparameter Syntax

The RDS syntax is as follows:

#### For 1 Server:

```
RDS=(server-name,server-node-name,subprogram,logon-indicator,transport-protocol-name)
```

#### For 2 to 10 Servers:

```
RDS=((server-name,server-node-name,subprogram,logon-indicator,transport-protocol-name)(server-name,subprogram,logon-indicator,transport-protocol-name)...(server-name,server-node-name,subp
```

#### Where:

Syntax Element	Value	Explanation
<i>server-name</i>	1 - 8 characters	The server name.  There is no default, the value must be specified.
<i>server-node-name</i>	1 - 8 characters	The server node name.  There is no default, the value must be specified.

Syntax Element	Value	Explanation
<i>subprogram</i>	1 - 8 characters	The name of the subprogram titled CALLNAT, which is to be used as an interface.  The default name is RDSSCDIR.
<i>logon-indicator</i>	L	The client initiates a Natural logon to the server with the library name of the current library on the client.  On Windows platforms: Instead of specifying L, check the selection box.
	(blank)	Blank means that no server logon will be executed. If nothing is specified, this is the default.
<i>transport-protocol-name</i>	ACI	The name of the transport protocol to be used. ACI is the only possible value and the default.

### RPCSDIR - Library for Service Directory

RPCSDIR=*value* specifies the name of the Natural library (or one of its steplib) used by the RPC client at runtime.

<b>Possible settings</b>	1 - 8 characters	Valid Natural library name.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

RPCSDIR is evaluated by the SYSRPC utility functions Service Directory Maintenance and Server Command Execution.

### TIMEOUT - Wait Time for RPC Server Response

TIMEOUT=*value* specifies the number of seconds the client is to wait for an RPC server response.

<b>Possible settings</b>	0 - 32767	Timeout in seconds.  <b>Note:</b> If this time is exceeded, the remote procedure call will be terminated with a corresponding error message.
<b>Default setting</b>	55	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	At runtime, this value can be overwritten using the Parameter Maintenance function of the SYSRPC utility.

## TRYALT - Try Alternative Server Address

TRYALT=*value* specifies whether an RPC client should try to execute an RPC request on an alternative server or not.

<b>Possible settings</b>	ON	If a request could not be executed on the node you specified, the RPC client tries to find an alternative server address to send that request to.
	OFF	No such attempt will be made.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	At runtime, this value can be overwritten using the Parameter Maintenance function of the SYSRPC utility.

For further information, see *Specifying RPC Server Addresses* in the *Natural RPC (Remote Procedure Call)* documentation.

## Keyword Subparameters for Server Only

The following keyword subparameters are available for the server only:

LOGONRQ | NTASKS | RPCUCT | SRVCMIT | SRVNAME | SRVNODE | SRVRTRY | SRVTERM | SRVUSER | SRVWAIT | TRACE | TRANSP




**Note:** See also *Set the RPC Server-Specific Natural Parameters* in the *Natural RPC (Remote Procedure Call)* documentation.

## LOGONRQ - Logon for RPC Server Request Required

LOGONRQ=*value* determines whether or not logon data are required for an RPC server request.

<b>Possible settings</b>	ON	A logon is required; that is, the server only accepts requests from clients which include logon data in the RPC server request. For conversational requests, the logon data is only necessary when the conversation is opened.  <b>Note:</b> If the Natural RPC server runs under Natural Security, you are strongly recommended to set LOGONRQ=ON. For further information, see <i>Using Natural RPC with Natural Security</i> in the <i>Natural RPC (Remote Procedure Call)</i> documentation.
	OFF	A logon is <i>not</i> required. Logon data will be processed nevertheless.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	

<b>Specification within session</b>	no	
-------------------------------------	----	--

 **Note:** For Natural clients, the logon data can be requested either by setting the LOGON option of the SYSRPC Service Directory Maintenance or by using the **logon indicator** of the keyword subparameter DFS.

### NTASKS - Number of Server Tasks to be Started

NTASKS=*value* specifies the minimum number of server tasks to be started during server initialization, and the maximum number of server tasks that may be active at any time.

<b>Possible settings</b>	See <a href="#">NTASKS Subparameter Syntax</a> .	
<b>Default setting</b>	1, 1	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

 **Notes:**

1. NTASKS applies only to servers started in batch mode under z/OS or z/VSE, and to servers started by an RPC server front-end under CICS.
2. If the server has to handle a large number of client requests, you can use this keyword subparameter to improve the throughput by starting multiple (identically named) replicas of the same server task.
3. For further information, see the *Natural RPC (Remote Procedure Call)* documentation, and especially *Considerations for Mainframe Natural RPC Servers with Replicas*.

### NTASKS Subparameter Syntax

NTASKS=(*min,max*)

Or:

NTASKS=*min*

Where:

Syntax Element	Value	Explanation
<i>min</i>	1 - 99	Minimum number of server tasks to be started during server initialization.
<i>max</i>	1 - <i>n</i> 0 (unlimited)	Maximum number of server tasks that may be active at any time. <b>Note:</b> The maximum number <i>max</i> of server tasks applies only to servers started by an RPC server front-end.



**Note:** If you do not specify a *max* value, *max* defaults to 1 if *min* is set to 1, and it defaults to 0 if *min* is set to a value greater than 1.

### RPCUCT - Translate Subprogram Name into Upper Case

RPCUCT=*value* specifies whether or not the Natural RPC server will translate the name of the remote CALLNAT subprogram to be executed into upper case.

<b>Possible settings</b>	ON	The name of the remote CALLNAT subprogram to be executed by the Natural RPC server will be translated into upper case before the CALLNAT is invoked.  With this option, non-Natural RPC clients are supported that use mixed case characters in their subprogram names.  <b>Note:</b> On UNIX and Windows platforms, an implicit upper case translation is already done by Natural itself. RPCUCT=ON is therefore the compatibility mode for Natural RPC servers on mainframes and Natural RPC servers on UNIX and Windows platforms.
	OFF	The name of the remote CALLNAT to be executed by the Natural RPC server is not changed. If the name contains lower case characters a NAT00082 error message is to be expected.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### SRVCMIT - Server Commit Time

SRVCMIT=*value* specifies the time at which a Natural RPC server automatically commits an RPC conversation or a non-conversational RPC request.

<b>Possible settings</b>	B	The Natural RPC server automatically commits a database transaction before the reply is sent to the client. <b>Note:</b> If the reply fails, the database transaction is already committed.
	A	The Natural RPC server automatically commits a database transaction after the reply has been successfully sent to the client. <b>Note:</b> If the reply fails, the database transaction is rolled back.
<b>Default setting</b>	B	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** This parameter is only evaluated if the profile parameter `ETEOP` is set to ON.

### SRVNAME - Name of RPC Server

`SRVNAME=value` specifies the name of the RPC server, with which it registers on the node specified with the keyword subparameter `SRVNODE`.

<b>Possible settings</b>	1 - 32 characters	Valid server name.  In case of an EntireX Broker node, the value of SRVNAME corresponds to the value of the SERVER attribute of a service entry in the broker attribute file, as shown below:  <code>CLASS=RPC, SERVICE=CALLNAT, SERVER=svname</code>  See <i>Example</i> .
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### Example:

```
SRVNAME='PRODUCTION_SERVER'
```



**SRVNODE - Name of Node**

`SRVNODE=value` specifies the name of the node upon which an RPC server registers.

<b>Possible settings</b>	1 - 192 characters	Node name.  In case of an EntireX Broker node, a node name may refer to an Entire Net-Work node or to an TCP/IP address. Note that the EntireX Broker stub in use must support the naming notation. For details about the structure of node names and their support by the EntireX Broker stubs, refer to the EntireX documentation.  See <i>Examples</i> .
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

**Examples:**

The examples below are based on the EntireX notation.

```
SRVNODE=ETB001           /* Entire Net-Work node */
SRVNODE=PCBROKER        /* host name for a TCP/IP address */
SRVNODE='157.189.160.95:1958:TCP' /* TCP/IP address with port number */
SRVNODE='tcpip://host.com:1958' /* host name with port number */
```

**Notes:**

1. If a host name is used for the TCP/IP address, the name must either be known to your DNS server or it must be defined in the hosts file of your TCP/IP configuration.
2. If the port number is omitted, either a default port number is used by the EntireX Broker stub or a host name must be used, and the host name must be known to your DNS server or must be defined in the services file of your TCP/IP configuration.

**SRVTRY - Number of Connect/Reconnect Attempts**

`SRVTRY=value` specifies the number of attempts for an RPC server to connect/reconnect (REGISTER) to an EntireX Broker that is not active, and the wait time between two successive attempts.

<b>Possible settings</b>	See <i>SRVRTRY Subparameter Syntax</i> .	
<b>Default setting</b>	0, 60	No attempts.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	


### SRVRTRY Subparameter Syntax

The SRVRTRY syntax is as follows:

```
SRVRTRY=(attempts,wait-time)
```

Or:

```
SRVRTRY=attempts
```

 **Note:** If only a value for *attempts* is specified, the parentheses may be omitted.

Where:

Syntax Element	Value	Explanation
<i>attempts</i>	0 or 1 - 2147483647	Number of attempts to connect/reconnect to an EntireX Broker that is not active (EntireX Broker message 02150148).  <b>Note:</b> 1. The specification of <i>attempts</i> enables you to start a Natural RPC server before the required EntireX Broker has been started and to shutdown an EntireX Broker temporarily without implicitly terminating all Natural RPC servers. 2. If the EntireX Broker is still not active after the number of attempts specified in <i>attempts</i> or if <i>attempts</i> is zero, the RPC server terminates.
<i>wait-time</i>	0 or 1 - 3600	Wait time in seconds between two successive attempts.

### Examples:

1. `RPC=(SRVRTRY=(20,10))`

Or:

```
NTRPC SRVTRY=(20,10)
```

20 attempts with a wait time of 10 seconds between two successive attempts.

2. `RPC=(SRVTRY=500)`

Or:

```
NTRPC SRVTRY=500
```

500 attempts with a wait time of 60 seconds between two successive attempts.



**Note:** For further information, see the *Natural Natural RPC (Remote Procedure Call)* documentation, and especially *Considerations for Mainframe Natural RPC Servers with Replicas*.

### SRVTERM - Server Termination Event

`SRVTERM=value` specifies the event at which a Natural RPC server is automatically terminated.

<b>Possible settings</b>	NEVER	A Natural RPC server is never automatically terminated.  <b>Note:</b> To terminate a Natural RPC server, refer to <i>Terminating a Natural RPC Server</i> and <i>Using Application Programming Interface USR2075N</i> (for the EntireX Broker Service) in the <i>Natural RPC (Remote Procedure Call)</i> documentation.
	TIMEOUT	A Natural RPC server is automatically terminated if the wait time for the next client request outside of an RPC conversation is exceeded.  <b>Note:</b> TIMEOUT should only be set if you use an Attach Manager to dynamically start Natural RPC servers on request.
<b>Default setting</b>	NEVER	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### SRVUSER - User ID for RPC Server Registry

`SRVUSER=value` specifies the user ID needed to register a Natural RPC server on the node specified with the keyword subparameter `SVRNODE`.



**Note:** In case of an EntireX Broker node, `SRVUSER` is also used to logon to the EntireX Broker. A password is either taken from Natural Security (see `*NSC` below) or specified via the application programming interface `USR2072N`.

<b>Possible settings</b>	<i>user-ID</i>	Valid user ID. 1 to16 characters.
	*USER	If SRVUSER is set to *USER, the Natural server uses the current Natural user ID (see system variable *USER) to logon to the node.
	*NSC	If SRVUSER is set to *NSC and Natural Security is installed, the Natural server uses the current Natural user ID (see system variable *USER) and the password defined for this user ID in Natural Security to logon to the node.
<b>Default setting</b>	<i>timestamp</i>	If the user ID is omitted, the timestamp will be used.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### SRVWAIT - Wait Time of RPC Server

SRVWAIT=*value* specifies the number of seconds the server is to wait for a Natural RPC client request.

<b>Possible settings</b>	0	Wait time in seconds.  <b>Note:</b>  1. If this time is exceeded, the RPC server is informed by the node to which the RPC server has registered. The RPC server writes a corresponding message to the Natural RPC server trace file, and continues to wait for an RPC client request.  2. If TCP/IP is used to communicate with the node, a non-zero value will also avoid an indefinite wait in TCP/IP if the node cannot respond for any reason.
	or 1 - 32767	
<b>Default setting</b>	0	Unlimited wait time.  <b>Note:</b> In case of an EntireX Broker node, the wait time is set to the SERVER-NONACT value of the corresponding Entirex Broker attribute file.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

## TRACE - Define Trace Level for Natural RPC Servers

TRACE=*value* activates the Natural RPC trace facility and determines the trace level to be used.

<b>Possible settings</b>	0	Nothing is traced.
	1	Only messages (inclusive Natural errors) are traced.
	(1, E)	Messages are traced in the event of an error only.
	2	All messages and data from/to client are traced.
	(2, E)	Messages and data from/to client are traced in the event of an error only.
	3 - 9	The values 3 - 9 are also accepted. These values are for future use and behave like TRACE=2.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

For further information, see *Using the Server Trace Facility* in the *Natural RPC (Remote Procedure Call)* documentation.

## TRANSP - Server Transport Protocol

TRANSP=*value* specifies which server transport protocol is used. If ACI is used, you can additionally specify the transport method.



**Note:** The use of TRANSP is no longer required as you may now specify the full node name with [SRVNODE](#). It is still supported for compatibility reasons.

<b>Possible settings</b>	ACI	ACI is used. The transport method is defined by the EntireX Broker.
	(ACI, TCP)	ACI is used with TCP/IP.
	(ACI, NET)	ACI is used with Entire Net-work, i.e. using the Adabas protocol.
	(ACI, TCP-NET)	Trying to use ACI with TCP. If not available, ACI is used with NET.
	(ACI, NET-TCP)	Trying to use ACI with NET. If not available, ACI is used with TCP.
<b>Default setting</b>	ACI	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

## RPC Parameter Example

---

For the client:

```
RPC=(RPCSIZE=80,MAXBUFF=30,AUTORPC=ON,DFS=(MYSERV,MYNODE,,ACI))
```

For the server:

```
RPC=(RPCSIZE=80,MAXBUFF=30,SRVNAME=MYSERV,SRVNODE=MYNODE,SERVER=ON)
```

## NTRPC Macro Example

---

For the client:

```
NTRPC RPCSIZE=80, *
      MAXBUFF=30, *
      AUTORPC=ON, *
      DFS=(MYSERV,MYNODE1,,ACI), *
      RDS=((SRVX,NODEX),(SRVY,NODEY))
```

For the server:

```
NTRPC RPCSIZE=80, *
      MAXBUFF=30, *
      SRVNAME=MYSERV, *
      SRVNODE=MYNODE, *
      SERVER=ON
```

# 220

## RUNSIZE - Size of Runtime Buffer

---

This Natural profile parameter specifies the size of the Natural runtime buffer.

<b>Possible settings</b>	10 - 64	Buffer size in KB.
<b>Default setting</b>	16	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.

The Natural runtime buffer contains information on the following items:

- the file translation table (profile parameter [TF](#)),
- log information of the most recent command,
- the environment stack (for user settings),
- information about the last database error,
- PF-key names when working in SAA mode,
- various internal work areas and control information.





# 221

## SA - Sound Terminal Alarm

This Natural profile and session parameter specifies whether the terminal alarm feature is to be used.

<b>Possible settings</b>	ON	The terminal alarm sound is output each time the user is prompted for input by Natural.  <b>Note:</b> The use of this feature requires that the terminal alarm hardware feature has been installed for the terminal.
	OFF	No terminal alarm is used for input prompting, however, the alarm may still be activated with the <i>ALARM Option</i> of the REINPUT statement.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



**Note:** Within a Natural session, the profile parameter *SA* can be overridden by the session parameter *SA*.



# 222

## SB - Selection Box

---

▪ Syntactical Considerations .....	634
▪ Runtime Considerations .....	635
▪ Features .....	636
▪ Restrictions .....	638

Selection boxes in an INPUT statement are available on mainframe computers only. For other platforms, selection boxes may be defined in the map editor only.

Selection boxes can be attached to input fields. They are a comfortable alternative to help routines attached to fields, since you can code a selection box direct in your program. You do not need an extra program as with help routines.

You may define a selection box clause for every INPUT variable of type alpha, regardless if this field is an input or output field, or both.

The syntax is:

```
SB=operand1 [,operand1]...
```

where *operand1* represents a value operand which is used to fill up the selection box with items.

Operand	Possible Structure	Possible Formats	Referencing Permitted	Dynamic Definition
<i>operand1</i>	C S A	A	yes	no

With SB, you specify the values to be displayed within the selection box.

To assign a selection box to a field, specify the attribute SB for an alpha INPUT field in your Natural program using the following example syntax:

```
INPUT #FLD (SB='value1', #ITEM1, #ITEM2(1:3), #ITEM3(*))
```

The following topics are covered below:

## Syntactical Considerations

---

It is possible to assign both a selection box and a help routine to a field.

Selection boxes can be defined for every variable field in an INPUT statement. Exceptions are the following:

<b>System Variables</b>	For example: *PROGRAM, *COM
<b>Named Constants (mainframe only)</b>	defined with a CONST clause of DEFINE DATA statement.

In addition to the SB attribute, other attributes can be defined as well, for example: AD or CD.

The selection box field does not have to be modifiable, as is the case with AD=A or AD=M. In other words, it is possible to provide a selection box (and select values) even for a write-protected output field, such as AD=0. If you use AD=0, the user is forced to choose from a set of predefined values, which themselves appear in a selection box.

## Runtime Considerations

---

### Selection Box Position

When a program containing a selection box is executed, the selection box is positioned on the screen according to the same positioning algorithm used for help windows; that is, the size and position of the selection box are determined automatically, “near” the field.

### Selection Box Attributes

The color and intensified attributes assigned to the field are also applied to the values displayed in the corresponding selection box.

### Edit Masks in Selection Boxes

If an edit mask has been defined for the field, the edit mask is applied to all selection box values.

#### To define an edit mask for a field:

Using the `INPUT` statement, you can define an edit mask for a field. This is demonstrated in following code example.

```
DEFINE DATA
LOCAL
1 A(A4)
END-DEFINE
MOVE 'ABCD' TO A
*
SET KEY PF1 = HELP
FORMAT KD=ON
*
INPUT A (AD=M EM=X.X.X.X SB='1234', 'WXYZ')
WRITE A
END
```

### Selection Box Line Sizes

The line size of the selection box matches the field length to which the box corresponds.

If a value intended for the selection box exceeds the line size of the selection box, the value is truncated.

## Sequence of Selection Box Values

Selection box values are displayed in the order they appear in the SB attribute.

## Features

---

### How a Selection Box is Displayed

For a field with attached selection box, an indicator “V” is displayed next to the field.

### Invoking Selection Boxes

To open a selection box, there are two ways to open a selection box:

- Enter a question mark (?) in the V-field and press ENTER.

Or position the cursor on the V-field and press the help key (for example, PF1), if you have defined it to do so. See the next section for more details.

To define a help key to invoke the selection box, you can define a help-key (for example, PF1) to make invoking the selection box much simpler.

This is done by adding the following line of code to your program:

```
SET KEY PF1=HELP
```

### Scrolling in a Selection Box

There are two ways to scroll in a selection box:

- By putting the cursor on the MORE line and pressing ENTER.
- Or by using the terminal commands %W- and %W+ assigned to PF-keys (for example, PF7/PF8).

### Selecting a Value in a Selection Box

A value is selected from the selection box and copied into the field by putting the cursor on the value and pressing ENTER.

## Duplicate Lines in a Selection Box

Lines with the same content which directly follow each other are suppressed.

For example, the following code

```
INPUT #FLD (SB='123', '456', 'XYZ', 'XYZ', 'XYZ', 'ABC', 'DEF')
```

produces the following output to the selection box:

```
123
456
XYZ
ABC
DEF
```

In the preceding example, `XYZ` is only displayed once. The other occurrences are considered redundant since they directly follow one another.

However, this line of code

```
INPUT #FLD (SB='123', 'XYZ', '456', 'XYZ', 'ABC', 'XYZ', 'DEF')
```

produces the following output to the selection box:

```
123
XYZ
456
XYZ
ABC
XYZ
DEF
```

In this case, all three occurrences of `XYZ` are displayed, since they do not directly follow one another.

## Blank Lines in Selection Boxes

A blank line is only displayed the first time it appears; all subsequent blank lines are suppressed.

## Restrictions

---

The number of operands in the `SB` clause is limited to 20.

The maximum number of values in a selection box is 248. When that limit has been reached, further values are not displayed. No error message is issued when the limit has been exceeded.



# 223

## SCTAB - Scanner Characters

---

▪ SCTAB Parameter Syntax .....	640
▪ NTSCTAB Macro Syntax .....	641
▪ Example of SCTAB Parameter .....	641
▪ Examples of NTSCTAB Macro .....	642

This Natural profile parameter can be used to overwrite the definitions in the scanner character-type table `NTSCTAB`, which is contained in the configuration module `NATCONFIG`. `SCTAB` corresponds to the `NTSCTAB` macro in the Natural parameter module.

<b>Possible settings</b>	See <i>SCTAB Parameter Syntax</i> .	
<b>Default setting</b>	As specified within the macro <code>NTSCTAB</code> in <code>NATCONFIG</code> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTSCTAB</code> is used instead.
<b>Specification within session</b>	no	



#### Notes:

1. The `NTSCTAB` scanner character type table defines the properties of characters used in mask definitions for the `MASK` option and recognized as delimiters in the `EXAMINE` and `SEPARATE` statements.
2. If the `CP` profile parameter is set to a value other than `OFF`, values specified with `SCTAB` are ignored. See also *Translation Tables* in the *Unicode and Code Page Support* documentation.

## SCTAB Parameter Syntax

The `SCTAB` parameter is specified as follows:

```
SCTAB=(character1,attribute-type1,attribute-type2,...,character2,attribute-type1,attribute-type2,...)
```



**Note:** It is possible to specify more than one character in the list of values. You must enclose the entire string of characters/attribute pairs in parentheses.

Or:

```
SCTAB=OFF
```

Where:

Syntax Element / Value	Explanation
<i>character</i>	You specify a character, and after it its attribute type(s).  You can specify the character either as the one-byte character itself (enclosed in apostrophes) or as the hexadecimal representation of that character.
<i>attribute-type</i>	Attribute types can be:

Syntax Element / Value	Explanation	
	UPPER	upper-case alphabetical
	LOWER	lower-case alphabetical
	NUM	numeric
	HEX	hexadecimal
	ALFANUM	alphanumeric
	SPECIAL	special
	NDELIM	non-delimiter
OFF	With SCTAB=OFF, all (static and dynamic) definitions are reset to the values specified within the macro NTSTAB in NATCONFIG.	

## NTSTAB Macro Syntax

The NTSTAB macro is specified as follows:

```
NTSTAB=character,attribute-type,attribute-type...
NTSTAB=character,attribute-type,attribute-type...
```



### Notes:

1. For an explanation of the syntax elements, see [SCTAB Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTSTAB, but only dynamically with the profile parameter SCTAB.
3. For each character to be overwritten, you have to specify a separate NTSTAB macro; see [Examples of NTSTAB Macro..](#)

## Example of SCTAB Parameter

```
SCTAB=(5E,LOWER,NDELIM,'B',SPECIAL,7B,SPECIAL,'Ä',UPPER,NDELIM)
```

## Examples of NTSCTAB Macro

---

```
NTSCTAB 5E,LOWER,NDELIM
NTSCTAB 'B',SPECIAL
NTSCTAB 7B,SPECIAL
NTSCTAB 'Ä',UPPER,NDELIM
```

# 224

## SELUNIT - Activate Selected Natural Features

---

- Selectable Units Available ..... 644
- SELUNIT Parameter Syntax ..... 645
- Example of SELUNIT Parameter ..... 645

This Natural profile parameter selects and activates or deactivates single or multiple new or changed Natural features supplied as selectable units.

For more information, see *Selectable Units for New Natural Features* in the *Operations* documentation.

<b>Possible settings</b>	OFF	All selectable units (Natural features) are deactivated; any keyword subparameter settings are switched off.
	$Un=\{ON OFF\}$	One or more selectable units (Natural features) are activated (ON) or deactivated (OFF) with the keyword subparameter $Un$ : see <a href="#">SELUNIT Parameter Syntax</a> .  The SHOWSU system command lists all selectable units available in your Natural environment and the selectable units that have been specified and activated. You can also use the SU line command/keyword of the SYSPROD system command to check whether selectable units are active.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

## Selectable Units Available

The following selectable unit is available on z/OS:

Unit	Feature
U1	<p>Compression and decompression of Natural threads by the Natural Roll Server during roll-out and roll-in operations. This reduces CPU usage by the Natural nucleus, and thus CPU consumption of the hosting TP system (CICS or IMS TM) or the Natural server (Natural RPC server or Natural Development Server).</p> <p>The compression routines run on an IBM System z Integrated Information Processor (zIIP), if available, improving overall performance of Natural.</p>

## SELUNIT Parameter Syntax

---

The following syntax applies:

```
SELUNIT={OFF | ({U $n$ ={ON | OFF}},... ) }
```

Where:

$n$  is a number from 1 to 24, each representing a specific feature as announced in *Changed/Enhanced Profile Parameters* in the current *Natural Release Notes* for Mainframes.

## Example of SELUNIT Parameter

---

```
SELUNIT=(U1=ON,U4=OFF)
```





# 225

## SENDER - Screen Output Destination for Asynchronous

### Processing

---

This Natural profile parameter specifies the destination where output from an asynchronous application is to be displayed.

<b>Possible settings</b>	1 to 8 characters	Output destination, for example, printer.
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



#### Notes:

1. This Natural profile parameter only applies to Natural under CICS, Complete, IMS TM and *openUTM*.
2. The destination specified applies to hardcopy output and primary reports.
3. Any additional reports are sent to the destinations specified with the `DEFINE PRINTER` statement (just as in a synchronous online session).

#### Platform-specific Characteristics

The following platform-specific characteristics apply:

<b>Platform:</b>	<b>Comment:</b>
CICS	<p>The profile parameter <code>SENDER</code> specifies the CICS transient data (TD) destination and the terminal or printer for terminal output from asynchronous sessions. If the specified destination does not exist, the session output is sent to the specified terminal or printer. If the specified terminal or printer does not exist either, the session terminates abnormally.</p> <p>The default terminal output format for asynchronous sessions is a 3270 data stream. If the <code>SENDER</code> terminal specification is not a 3270 device, the Natural application must switch to the</p>

Platform:	Comment:
	<p>correct terminal type before the first output statement (for example, by specifying <code>SET CONTROL 'T=PRNT'</code> for a printer or by starting with profile parameter <code>TTYPE=PRNT</code>).</p> <p>If you are routing all output to a (spool) destination, such as CSSL, the Natural application must be switched to line mode, for example, by specifying <code>SET CONTROL 'T=XXXX'</code> or by starting with profile parameter <code>TTYPE=XXXX</code>, where <code>XXXX</code> is BTCH or ASYL. In this case, two other profile parameters are relevant: <code>EJ</code> and <code>INTENS</code>.</p> <ul style="list-style-type: none"> <li>■ If you set <code>EJ=ON</code>, all lines are routed with a leading ASA control character.</li> <li>■ With <code>EJ=OFF</code>, there is no leading ASA control character.</li> <li>■ <code>INTENS</code> should be set to 1, particularly if you have set <code>EJ=OFF</code>.</li> </ul> <p><b>Note:</b> For further CICS-specific functionality, see <i>Asynchronous Natural Processing under CICS</i> in the <i>TP Monitor Interfaces</i> documentation.</p>
Com-plete	See <i>Asynchronous Natural Processing under Com-plete/SMARTS</i> .
IMS TM	The profile parameter <code>SENDER</code> specifies the default <code>LTERM</code> . This <code>LTERM</code> is always used when no other printer has been specified. You should always dynamically define a <code>SENDER</code> parameter in the <code>NIIBOOT</code> module. This is important when Natural tries to output error messages when starting a session: if no <code>SENDER</code> parameter is specified, there is no valid <code>LTERM</code> and <code>NATIMS</code> terminates the session.
openUTM	The profile parameter <code>SENDER</code> specifies the ID for the initialization of an asynchronous transaction; that is, the ID which identifies the transaction as asynchronous. If output from an asynchronous transaction is to be printed, the setting specified with the <code>SENDER</code> parameter also identifies the printer on which the output is to be printed. <p><b>Note:</b> For further <i>openUTM</i>-specific functionality, see <i>Asynchronous Transaction Processing under openUTM</i> in the <i>TP Monitor Interfaces</i> documentation.</p>



**Note:** For further information, see also the profile parameter `OUTDEST` and Asynchronous Processing in the *Operations* documentation.

# 226 SF - Spacing Factor

This Natural profile and session parameter specifies the default number of spaces to be inserted between field settings of columns on Natural reports created using a `DISPLAY` statement.

<b>Possible settings</b>	1 - 30	Number of spaces. <b>Note:</b> The SF parameter cannot be set to 0; that is, at least one blank character must be placed between report columns.
<b>Default setting</b>	1	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



## Notes:

1. Within a Natural session, the profile parameter SF can be overridden by the session parameter SF.
2. Under Natural Security, the setting of this parameter can be overridden by the *Session Parameters* option of the Library Profile.
3. See also *Column Spacing - SF Parameter and nX Notation* in the *Programming Guide*.



# 227

## SG - Sign Position

This session parameter determines whether or not a sign position is to be allocated for a numeric field.

<b>Possible settings</b>	ON	A sign position will be allocated.
	OFF	No sign position will be allocated.  <b>Note:</b>  1. SG=OFF causes numeric fields with negative values to be output without a minus (-) sign.  2. SG=OFF does not prevent you from entering negative values in input fields.
<b>Default setting</b>	ON	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT INPUT PRINT WRITE	
<b>Applicable command</b>	none	



### Notes:

1. If the **EM** (edit mode) parameter is specified, it overrides the **SG** parameter.
2. See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.

**Example:**

```
FORMAT SG=OFF
```

# 228

## SKEY - Storage Key for Program Execution

This Natural profile parameter only applies on z/OS and z/VSE platforms.

SKEY determines the storage key of the TP monitor interface (Com-plete or CICS) under which Natural runs.

For details on Com-plete storage protect keys, see the related Com-plete documentation. For details on CICS key execution, see the related IBM documentation.

<b>Possible settings</b>	ON	<p>Natural runs in the storage key of the TP monitor under which the Natural program executes:</p> <ul style="list-style-type: none"> <li>■ Under Com-plete: Natural uses the storage protect key 8 of Com-plete to obtain storage for program execution.</li> <li>■ Under CICS: Natural uses CICS key even if EXECKEY(USER) is defined in CICS.</li> </ul> <p>EXECKEY(USER) with SKEY=ON does not have the same effect as EXECKEY(CICS), in particular, when CICS transaction isolation is active.</p>
	OFF	<p>Natural runs in a storage key that is different from the TP monitor under which the Natural program executes.</p> <p>Under CICS, Natural uses the execution key (EXECKEY) as defined in CICS.</p> <p>We recommend this setting to obtain the maximum benefits from the CICS storage protection facility if used.</p>
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	





# 229

## SL - Source Line Length

This Natural profile and session parameter specifies the number of characters to be interpreted on each Natural source code line. This also applies to the line mode editor which is activated with the system command EDT.

<b>Possible settings</b>	20 - 250	<p><b>In batch mode:</b></p> <p>The number of characters to be processed on each line in the data sets CMSYNIN and CMOBJIN.</p> <p><b>Note:</b> For details on these data sets, refer to the operating-system-specific parts of the section <i>Natural in Batch Mode</i> in the <i>Operations</i> documentation.</p> <p><b>In online mode:</b></p> <p>The number of characters to be interpreted when using the Natural program editor in EDT mode (as activated with the system command EDT).</p>
<b>Default setting</b>	72	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	none	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. Within a Natural session, the profile parameter SL can be overridden by the session parameter SL.

2. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the Library Profile.

# 230

## SLOCK - Source Locking

This Natural profile parameter is used to specify how concurrent updates of Natural source members are to be handled (see also *Locking of Source Objects* in the *Editors* documentation).

Possible settings	PRE	<p>Activates locking of source objects that are edited either locally or in a SPoD environment, or using Natural ISPF, or in mixed environments.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"><li>1. This is the recommended setting when working in mixed environments.</li><li>2. In order to lock a source member against concurrent updates, a specific record is written to the Natural system file FUSER or FNAT (depending on where the source member to be edited is located). For a DDM, the lock record is written to the Natural system file FDIC.</li></ol>
	SPoD	<p>Locking of source objects occurs only in a remote development environment basing on Natural Single Point of Development (SPoD).</p> <p><b>Note:</b></p> <ol style="list-style-type: none"><li>1. This setting provides compatibility with previous Natural versions that supported locking under SPoD.</li><li>2. In order to lock a source member against concurrent updates, a specific record is written to the Development Server File (FDIC) system file.</li><li>3. For a DDM, the locked record is written to the Natural system file FDIC.</li></ol>
	POST	<p>When setting SLOCK=POST, the source object which is being edited can be read into the source work area and modified by multiple users. However, only the user who saves a modification first can update the source object.</p> <p><b>Note:</b></p>

		<ol style="list-style-type: none"> <li>1. This is done by comparing the time stamp of the source object stored in the database with the time stamp of the source object when it is read into the source work area.</li> <li>2. All other users receive appropriate error messages when trying to save the source.</li> <li>3. This concept is not compatible with the SPoD locking concept of previous Natural versions.</li> </ol>
	OFF	Deactivates all locking mechanisms.
<b>Default setting</b>	SPoD	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

# 231

## SM - Programming in Structured Mode

---

This Natural profile and session parameter specifies whether or not structured mode must be used.

<b>Possible settings</b>	ON	Forces the use of structured mode syntax.
	OFF	Programming can be done in either structured mode or reporting mode.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	none	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. If structured mode (SM=ON) is specified by profile parameter SM, an attempt to change this setting with system command GLOBALS and session parameter SM will be rejected (Reporting mode not permitted).
2. Within a Natural session, the profile parameter setting SM=OFF can be overridden by the session parameter SM=ON.
3. Under Natural Security, the setting of the mode option in the library's security profile determines whether the SM profile parameter can be used; see also *Programming mode* in the *Natural Security* documentation.
4. Under Natural Security, this parameter may be disabled by Natural Security to the effect that structured mode is invariably in effect for a given library.



# 232

## SORT - Control of Sort Program

---

▪ SORT Parameter Syntax .....	662
▪ NTSORT Macro Syntax .....	662
▪ Keyword Subparameters .....	663
▪ Examples of SORT Parameter .....	666
▪ Examples of NTSORT Macros .....	666

This Natural profile parameter is used to control the sort program used for the processing of SORT statements. It corresponds to the `NTSORT` macro in the Natural parameter module.

<b>Possible settings</b>	For an explanation of the individual sort options, see <a href="#">SORT Parameter Syntax</a> ; for their possible settings, see <a href="#">Keyword Subparameters</a> .	
<b>Default setting</b>	See <a href="#">Keyword Subparameters</a> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTSORT</code> is used instead.
<b>Specification within session</b>	no	



**Notes:**

1. The keyword subparameters of `SORT` or `NTSORT` can be used to specify options that control the handling of the sort program to be used when a `SORT` statement is executed.
2. The sort program to be used can be either Natural's internal one (the default for all environments) or an external one. The type of sort program used depends on the setting of the keyword subparameter [EXT](#).

## SORT Parameter Syntax

---

The `SORT` parameter is specified as follows:

```
SORT=(keyword-subparameter=value,keyword-subparameter=value,...)
```

For names and values of the keyword subparameters, see [Keyword Subparameters](#).

## NTSORT Macro Syntax

---

The `NTSORT` macro is specified as follows:

```
NTSORT EXT=value, *
      EXTEOJ=value, *
      EXTNAME=value, *
      EXTOPT=value,value,..., *
      STORAGE=value, *
      WRKSIZE=value
```

For names and values of the keyword subparameters, see [Keyword Subparameters](#).



## Keyword Subparameters

EXT | EXTEOJ | EXTNAME | EXTOPT | STORAGE | WRKSIZE

### EXT - Use of External Sort Program

EXT=*value* specifies if an external sort program is to be used or not.

Value	Explanation
ON	An external sort program will be used. The use of an external sort program is possible only in batch environments, including IMS TM/BMP, TSO, TIAM.
OFF	The Natural sort program will be used. This is the default value.



**Note:** We recommend that you set EXT=ON if your environment supports the use of an external sort program. This avoids the need to adapt WRKSIZE to the amount of data to be sorted.

### EXTEOJ - Action in the Event of an Error

EXTEOJ=*value* specifies the action to be taken if an error is detected during the execution of the external sort program.

Value	Explanation
ON	If an error is detected, sort processing is terminated. ON requires that the sort program used is able to detect a return code of 16 from both the E15 and E35 sort exit routines.
OFF	If an error is detected, Natural withholds further calls to the sort program and ignores each record as it is passed to the E35 sort exit routine (this is the default).

### EXTNAME - Name of External Sort Program

EXTNAME=*value* specifies the name of the external sort program to be used.

Value	Explanation
1 to 8 characters.	External sort program name.
SORT	This is the default value.



**Note:** This subparameter does not apply under BS2000/OSD.

## EXTOPT - Additional Options for External Sort Program

EXTOPT=( *value*, *value*, ... ) specifies additional options for the external sort program.



**Note:** This subparameter does not apply under BS2000/OSD.

Natural generates the necessary field and format parameters and passes them to the external sort program. With EXTOPT, you can specify additional parameters to be passed to the external sort program. You can only specify parameters that are part of the control statement syntax of your external sort program.

You can specify up to two option strings which are delimited by a slash (/). The first option string is appended to the SORT control statement, the second option string is used to build an OPTION control statement. You may omit the option string before or after the slash. If the option string after the slash is omitted no OPTION control statement is generated at all.

The whole option string must be enclosed in single quotes ('...'). For compatibility reasons, it is still possible to have the option string enclosed in brackets instead.

For compatibility reasons, a single option string without a leading or trailing slash is handled differently. Depending on the underlying operating system, the options are appended to the following control statements:

z/OS:	SORT control statement
z/VSE:	OPTION control statement

### Example:

The additional parameters can be specified as in the following example:

```
EXTOPT=(SIZE=E2000000,NOEQUALS,DYNALLOC=(3350,8))
EXTOPT='SIZE=E2000000,NOEQUALS,DYNALLOC=(3350,8)'
EXTOPT='SIZE=E2000000,NOEQUALS,DYNALLOC=(3350,8)/NOCHECK'
EXTOPT='/NOCHECK'
EXTOPT='WORK=4/'
```

## STORAGE - Type of Storage Medium

STORAGE=*value* specifies the type of storage medium to be used by Natural's internal sort program if there is not enough storage available in the work pool (WRKSIZE). If the number of records exceeds this storage, the internal sort program tries to use intermediate storage to additionally process records.

Value	Explanation
MAIN	Only the remaining storage of WRKSIZE is used, no other intermediate storage is available. This is the default setting.
BP	The sort buffer pool is used as intermediate storage.
SD	SD files are used as intermediate storage. This value is evaluated under Com-plete only.
SMARTS	SMARTS portable file system is used.

### SD Files under Com-plete/SMARTS

- The SD files used for sort processing are allocated as temporary SD files. They are allocated for a stack level. This means, the name syntax of the temporary SD files is:

```
&&STsnnn
```

Where:

&&	Indicator for a temporary SD file
ST	Standard prefix for the temporary SD file used for sort processing
s	Stack level
nnn	Sequence number within a single sort run

- SMARTS work files are located in the SMARTS Portable File System. The directory path must be specified with the SMARTS environment variable \$NAT\_WORK\_ROOT. For a SMARTS work file used for sort processing, a SORT directory is created with subdirectories for each user who performed a sort: \$NAT\_WORK\_ROOT/SORT/*userid*. The name of the work file used for sort processing corresponds to the name of the temporary SD file under Com-plete.

### Usage of Sort Buffer Pool

- The use of a sort buffer pool only makes sense if you cannot further increase the WRKSIZE to hold the sort records. This typically applies in online environments with a storage thread of limited size. In all other cases, you only need to specify a sufficient WRKSIZE.
- If you want to use a sort buffer pool, define the SORT keyword subparameter STORAGE=BP to indicate that a sort buffer pool is to be used for any additional storage beyond the defined WRKSIZE. Simultaneously, use the profile parameter BPI or the parameter macro NTBPI to make a buffer pool of TYPE= SORT and NAME=*name* known to Natural, for example: BPI=(TYPE= SORT , NAME=XYZ). When a name is specified with the BPI keyword subparameter NAME, reference is made to a global sort buffer pool, whereas a local sort buffer pool can be specified by NAME=' ' (blank).

## WRKSIZE - Size of Work Buffer Used by Sort Program

WRKSIZE=*value* specifies the size of the work buffer used by the sort program.

The work buffer specified by WRKSIZE accommodates internal sort control data. The remaining storage is used to collect and sort the records. The size of the sort control data depends on various factors (the WRKSIZE itself, the sort record length, the number of sort keys, their size and format) and can therefore not be calculated in a formal way.

Value	Explanation
0 or 10 - 2097151	Size of work buffer (in KB). WRKSIZE=0 means that no sort operations can be performed.
10	This is the default value.



**Note:**

## Examples of SORT Parameter

---

### Example 1:

```
SORT=(EXT=OFF,WRKSIZE=1024)
```

The internal Natural sort program and a work buffer of 1 MB are used for sort processing.

### Example 2:

```
SORT=(EXT=ON,EXTOPT='/EQUALS')
```

An external sort program with an OPTION EQUALS control statement is used for sort processing.

## Examples of NTSORT Macros

---

```
NTSORT EXT=OFF,                                     *
      WRKSIZE=1024

NTSORT EXT=ON,                                       *
      EXTOPT='/EQUALS'
```

The first example defines an internal Natural sort program and a work buffer of 1 MB. The second example defines an external sort program with an OPTION EQUALS control statement.

# 233 SOSI - Shift-Out/Shift-In Codes for Double-Byte

## Character Set

---

- SOSI Parameter Syntax ..... 668
- Positional Subparameters ..... 668
- Conversion of Logical Shift-Out/Shift-In Characters ..... 669
- Automatic Adaptation of Translation Tables ..... 669
- Compatibility of SOSI Profile Parameter with SO and SI Profile Parameters of Previous Natural Versions ..... 670
- SOSI Parameter Examples ..... 670

This Natural profile parameter is relevant for Asian countries which use double-byte character sets (DBCS).

If the profile parameter `CP` is set to a multi-byte code page (MBCS), the logical shift-in and shift-out characters will be supplied with the code page and therefore `SOSI` will be ignored.

<b>Possible settings</b>	See <i>Positional Subparameters</i> below.	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

The following topics are covered below:

## SOSI Parameter Syntax

The parameter syntax of `SOSI` is as follows:

```
SOSI=(logical-shift-out,[physical-shift-out],logical-shift-in,
[physical-shift-in],[SO/SI-display-length])
```

A shift-out code is used to indicate the point at which the code of character representation is shifted out of normal (single-byte) mode into double-byte mode.

A shift-in code is used to indicate the point at which the code of character representation is shifted from double-byte mode back into normal (single-byte) mode.

## Positional Subparameters

The positional subparameters are described below:

Subparameter	Explanation
<i>logical-shift-out</i>	<p>The logical shift-out character must be a single character. Specify the hexadecimal representation of the logical shift-out character.</p> <p>Usually, the value <code>0E</code> is used for IBM hardware and the value <code>28</code> is used for Fujitsu hardware.</p>
<i>physical-shift-out</i>	<p>The value of the physical shift-out character must be chosen depending on the screen hardware that is used.</p> <p>The length of the physical shift-out character may be one or two bytes. Specify the hexadecimal representation of the physical shift-out character.</p>

Subparameter	Explanation
	The default value is the logical shift-out character.
<i>logical-shift-in</i>	<p>The logical shift-in character must be a single character. Specify the hexadecimal representation of the logical shift-in character.</p> <p>Usually, the value 0F is used for IBM hardware and the value 29 is used for Fujitsu hardware.</p>
<i>physical-shift-in</i>	<p>The value of the physical shift-in character must be chosen depending on the screen hardware that is used.</p> <p>The length of the physical shift-in character may be one or two bytes. Specify the hexadecimal representation of the physical shift-in character.</p> <p>The default value is the logical shift-in character.</p>
<i>SO/SI-display-length</i>	<p>The number of bytes occupied on the screen by the physical shift-out/shift-in characters.</p> <p>Possible values are 0 and 1. The default value is 1.</p> <p>For IBM hardware, the value 1 must be used. For Fujitsu hardware, the value 0 must be used.</p>

## Conversion of Logical Shift-Out/Shift-In Characters

Logical shift-out/shift-in characters are converted into the corresponding physical shift-out/shift-in characters before data is transferred to the screen.

Physical shift-out/shift-in characters are converted into the corresponding logical shift-out/shift-in characters before data entered on the screen is transferred to the Natural application.

## Automatic Adaptation of Translation Tables

If code page support is disabled (that is, the profile parameter `CP` is set to `CP=OFF`), the entries for the logical shift-out/shift-in characters are updated in the translation tables provided by the following macros and profile parameters:

Table	Macro	Profile Parameter
Standard (primary) output translation table	NTTAB	TAB
Alternative (secondary) output translation table	NTTAB1	TAB1
Secondary input translation table used when the session parameter PM is set to C.	NTTAB2	TAB2
SYS* output translation table	NTTABL	TABL

If the characters into which the logical shift-out/shift-in characters are to be translated still have their default value (? = X'6F') in the respective translation table at Natural startup (that is, they have not been modified by one of the macros or profile parameters mentioned above), they will be updated so that logical shift-out/shift-in characters will not be not translated for input and output.

For detailed information on the translation tables, see *Translation Tables* in the *Operations* documentation.

## Compatibility of SOSI Profile Parameter with SO and SI Profile Parameters of Previous Natural Versions

The subparameter logical-shift-out corresponds to the profile parameter SO and the subparameter logical-shift-in corresponds to the profile parameter SI that were available with previous Natural versions.

Specifying `SOSI=(xx,xx,yy,yy,1)` is equivalent to specifying `SO=xx,SI=yy`.

## SOSI Parameter Examples

For IBM hardware, you should use `SOSI=(0E,0E,0F,0F,1)`, which is equivalent to `SOSI=(0E,,0F,,1)`.

For Fujitsu hardware, you should use `SOSI=(28,28,29,29,0)`, which is equivalent to `SOSI=(28,,29,,0)`.

To execute an application that has been created for IBM hardware (with the parameter setting `SOSI=(0E,0E,0F,1)` applied) on Fujitsu hardware without changing the application, use `SOSI=(0E,4028,0F,2940,1)`.



# 234

## SRETAIN - Retain Source Format

This Natural profile parameter specifies the encoding format for new and existing Natural sources when they are saved.

<b>Possible settings</b>	ON	<p>The original code page of an existing Natural source is retained.</p> <p>If an existing Natural source without code page information is saved, it will not receive any code page information.</p> <p>When a new Natural source is created, it will be saved in the default code page format as defined with the profile parameter <a href="#">CP</a>.</p>
	OFF	Natural sources will be saved in the default code page format.
	(ON, EXCEPTNEW)	<p>The original code page of an existing Natural source is retained.</p> <p>If an existing Natural source without code page information is saved, it will not receive any code page information.</p> <p>When a new Natural source is created, it will be saved without code page information.</p> <p>(ON, EXCEPTNEW) retains the compatibility of newly created Natural sources with existing applications that have been created with earlier Natural versions that did not provide code page support.</p> <p>Note: The value (ON, EXCEPTNEW) is supported on mainframe computers only.</p>
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Notes:**

1. For the code page of a Natural source that is saved or stowed, the resulting encoding depends on the settings of the profile parameters SRETAIN and CP. See *Code Page Support for Editors, System Commands and Utilities on the Mainframe* in the *Unicode and Code Page Support* documentation.
2. See also *Profile Parameters and Macros* in the *Unicode and Code Page Support* documentation.

# 235

## SSIZE - Size of Source Area Allocated by the Editors

---

This Natural profile parameter determines the size of the buffer used by the Software AG Editor.

<b>Possible settings</b>	40 - 512	Buffer size in KB.
	0	<b>Note:</b> If SSIZE=0 or if the required space is not available, the Software AG Editor cannot be used.
<b>Default setting</b>	64	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Alternatively, you can use the equivalent Natural profile parameter **DS** or the macro **NTDS** to specify the size of the buffer.
2. If you have defined an Editor work file with a record length greater than 4 KB (default), you should use an SSIZE value greater than 64 KB. There are two work file record buffers allocated within the SSIZE. Therefore, you should add two times your work file record buffer size minus 4 KB to your SSIZE. Example: Your Editor work file has a record length of 10 KB. Then use at least SSIZE=76 (that is,  $64+2*(10-4)$ ).
3. For further information about the SAG Editor work file, see *Operating the Software AG Editor, Editor Work File* in the *Operations* documentation.



# 236

## STACK - Place Data/Commands on the Stack

---

This Natural profile parameter is used to place data/commands on the Natural stack.



### Note:

<b>Possible settings</b>	any character string	See below.
<b>Default setting</b>	HELLO	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If `STACK` is used, a colon (:) must be specified with the profile (or session) parameters `DC`, `HI`, `IA`, `ID` and `STACKD`.
2. The stack can contain a sequence of Natural commands and/or user-specified commands, together with their data, for execution at the beginning of the Natural session.
3. The command stack is processed before the user is prompted for input on the screen (TP mode) or data are read from `CMSYNIN/CMOBBJIN` files; see *Natural in Batch Mode* in the *Operations* documentation.
4. If an `INPUT` statement is encountered during stack processing, the corresponding input screen is generated only if the required input data were not supplied with the command when the stack was created. Any reports generated during stack processing are displayed as usual.
5. Each system or user-defined command can be optionally followed by data which are used to satisfy requests for information required during the processing of the command. The character string provided as data for the `STACK` parameter must be enclosed in parentheses. If the command is a user command (that is, the name of a user program), any data provided resolve the data requirements of `INPUT` statements within the user program.

**Conventions:**

- Multiple settings for one INPUT statement are separated by a comma (,).
- Data for multiple INPUT statements are separated by a colon (:).
- Commands are separated by the stack delimiter character defined by profile parameter `STACKD`. The default setting is a semicolon (;).

**Examples:**

```
STACK=(LOGON USER1;UCMD1 A,B;UCMD2 C,D:E;FIN)
STACK=OFF                                     No STACK data.
STACK=UCMND Execute command UCMND           No embedded blanks.
STACK=(CMD DATA:DATA;CMD...)               Place commands/data on stack.
```



**Note:** Since some commands (for example, `GLOBALS`) do not read parameters by `INPUT`, a blank character should be used rather than a colon to delimit a command from the first parameter data element.

```
STACK='LOGON SYSTEM'
```



**Note:** Because the macro assembler does not allow embedded blanks within parentheses, the character string must be enclosed in apostrophes when specified as static parameter.

# 237

## STACKD - Stack Delimiter Character

This Natural profile parameter specifies the character to be used as the command delimiter for the `STACK` parameter and for command input under the Natural Development Server (product code: NDV) in a Natural Single Point of Development environment.

<b>Possible settings</b>	any special character	Character to be used as the command delimiter.  <b>Note:</b> The character must not be the same as the one specified with the <code>ID</code> profile/session parameter (input delimiter character), <code>DC</code> profile/session parameter (decimal character) or <code>IA</code> profile/session parameter (input assign character).
<b>Default setting</b>	; (semicolon)	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. To avoid that the value specified for the `STACK` parameter or the data passed as command input under the Natural Development Server is not interpreted as intended, the `STACKD` parameter value should be set to a character that is not contained in the data passed if the data contains the default value of the stack delimiter character (see example below). The `STACKD` parameter should be changed to a character other than the default character if the `ID` parameter has been set to the semicolon. For downward compatibility reasons, this restriction does not apply to `STACKD=;` (the default setting).
2. The character specified may be enclosed with single quotes.
3. If the input delimiter character is to be a comma, it must be specified as `ID=' , '`, because the comma (,) separates individual parameters.

**Example:**

```
STACKD='/',ID=';' STACK=(DUMP IOB;+100/FIN)
```

To avoid that the semicolon after DUMP IOB is interpreted as a command delimiter, STACKD is set to '/ '.



# 238

## STEPLIB - Additional Steplib Library

---

This Natural profile parameter specifies the name of an additional Natural steplib (concatenated library) to be used.

<b>Possible settings</b>	1 to 8 characters	Steplib name.
<b>Default setting</b>	SYSTEM	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



**Note:** For further information, see *Steplib Libraries* and *Search Sequence for Object Execution* in the *Using Natural* documentation.



# 239

## SUBSID - Subsystem ID under z/OS and z/VSE

---

This Natural profile parameter is available under z/OS and z/VSE only. It identifies the Natural subsystem to be used.

<b>Possible settings</b>	1 - 4 characters	Natural subsystem. <b>Note:</b> If you specify less than 4 characters, blanks will be appended so as to get a 4-byte setting.
<b>Default setting</b>	NAT8	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. For the purposes of the Natural CICS Interface (see `ROLLSRV`, `SIPSERV`, `SUBSID`), the Natural profile parameter `SUBSID` is ignored if it is specified in a parameter string by a profile parameter `SYS` or `PROFILE` or in an alternate Natural parameter module (as specified with the profile parameter `PARM`).
2. For information on the Natural subsystem, see *Natural Subsystem under z/OS* or *Natural Subsystem under z/VSE* in the *Operations* documentation.



# 240

## SYNERR - Control of Syntax Errors

---

This Natural profile parameter specifies whether or not syntax errors will be passed to the error transaction program.

<b>Possible settings</b>	ON	Syntax errors are passed to the error transaction program.
	OFF	Syntax errors are not passed to the error transaction program.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR4007N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. The error transaction program is defined either with the profile parameter [ETA](#) or by a user program by way of assignment to the system variable \*ERROR-TA or, if Natural Security is installed, within the Natural Security library profile; see *Components of a Library Profile* in the *Natural Security* documentation.
2. For further information, see *Using an Error Transaction Program* in the *Programming Guide*.



# 241      SYS - Define and Activate a Set of Dynamic Profile

## Parameters

---

▪ SYS Parameter Syntax .....	686
▪ NTSYS Macro Syntax .....	687
▪ Example of NTSYS Macro .....	688

This Natural profile parameter enables you to activate a set of dynamic profile parameters which is predefined in the Natural parameter module. This avoids the repeated specification of long sequences of profile parameters for the Natural session start.

<b>Possible settings</b>	See <i>SYS Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.
<b>Specification within session</b>	no	



**Notes:**

1. The specified parameter set must be defined in the Natural parameter module currently active, e.g. in an alternative parameter module, if it is specified by the **PARM** parameter before the **SYS** parameter.
2. A parameter set is evaluated right in its position of **SYS** in the parameter string, as you would have included the defined parameter string at this position instead.
3. As an alternative, you can use the profile parameter **PROFILE** which provides a similar functionality.
4. In the Natural parameter module, you use **NTSYS** macros to predefine sets of dynamic profile parameters. You identify such a set of parameters by giving it a unique set name.

The following topics are covered below:

## SYS Parameter Syntax

---

The parameter syntax of **SYS** is as follows:

```
SYS=set-name
```

Where:

Syntax Element	Explanation
<i>set-name</i>	Is the parameter set name defined by the <b>NTSYS</b> macro in the Natural parameter module. Identifies the subsequent set of parameters. The set name can be 1 to 8 characters long and must begin with an alphabetical character.



## NTSYS Macro Syntax

The NTSYS macro is specified as follows:

```
NTSYS set-name, 'parameter-string'
```

If the length of the parameter string exceeds 255 characters, continue on the next line(s) or define a second or more parameter strings.

```
NTSYS set-name, 'parameter-string', *
      'parameter-string', *
      'parameter-string'
```

To specify more than one set of parameters, you must use an NTSYS macro for each set.

```
NTSYS set-name1, 'parameter-string'
NTSYS set-name2, 'parameter-string'
```

Where:

Syntax Element	Explanation
<i>set-name</i>	identifies the subsequent set of parameters. It can be 1 to 8 characters long and must begin with an alphabetical character.
<i>parameter-string</i>	consists of individual profile parameters and their values.



### Notes:

1. The entire set of parameters you specify with an NTSYS macro must constitute a valid string of dynamic parameters. The specified parameter string is not checked for validity during the assembly of the Natural parameter module.
2. All parameter strings of one NTSYS macro are concatenated to one set of parameters.
3. An apostrophe within a substring is represented by two apostrophes.

## Example of NTSYS Macro

---

```
NTSYS SET1, 'FUSER=(,50),LC=ON,NC=ON,ULANG=2,          *  
           CMPO=(TQMARK=OFF),STACK=(LOGON ULIB1) '  
NTSYS SET2, 'FUSER=(,51),ULANG=4,WH=ON,KC=ON,          *  
           STACK=(LOGON ULIB2) '
```

# 242

## SYSCIP - Adabas Cipher Key for Natural System Files

This Natural profile parameter provides an Adabas default cipher key for access to Natural system files ([FNAT](#), [FUSER](#), [FDIC](#), [FSEC](#), [FPROF](#), [FSPool](#), [FREG](#)), which have been loaded with the “ciphered” option.

<b>Possible settings</b>	8 characters	The Adabas default cipher key for access to password-protected Natural system files.  <b>Note:</b>  1. The cipher key specified with the SYSCIP parameter applies to all Natural system files for which no individual cipher keys are specified.  2. If the Natural system files are not ciphered, set SYSCIP to blanks.
	blanks	
<b>Default setting</b>	blanks	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify the SYSCIP parameter dynamically in conjunction with any of the individual system file parameters <a href="#">FNAT</a> , <a href="#">FUSER</a> , <a href="#">FDIC</a> , <a href="#">FSEC</a> , <a href="#">FSPool</a> , <a href="#">FPROF</a> and <a href="#">FREG</a> , you must specify the SYSCIP parameter <i>before</i> any individual system file parameter.
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to Adabas databases.
2. Cipher keys for individual system files can be specified with the subparameter *cipher-key* of the profile parameters [FNAT](#), [FUSER](#), [FDIC](#), [FSEC](#), [FSPool](#), [FPROF](#) and [FREG](#).



# 243

## SYSPSW - Adabas Default Password for Natural System

### Files

---

It provides an Adabas default password for access to Natural system files ([FNAT](#), [FUSER](#), [FDIC](#), [FSEC](#), [FPROF](#), [FSPool](#), [FREG](#)), which have been password-protected.

<b>Possible settings</b>	8 characters	The Adabas default password for access to password-protected Natural system files.  <b>Note:</b>  <ol style="list-style-type: none"><li>1. If a Natural system file is password-protected, a password which permits updates to the file must be specified.</li><li>2. The password specified with the SYSPSW parameter applies to all Natural system files for which no individual passwords are specified.</li><li>3. If the Natural system files are not password-protected, set SYSPSW to blanks.</li><li>4. If profile parameter <a href="#">OPRB</a> is specified, the SYSPSW password is used for the initial Adabas open call and must permit access and/or update to all the files specified in <a href="#">OPRB</a>, as required.</li></ol>
	blanks	
<b>Default setting</b>	blanks	
<b>Dynamic specification</b>	yes	<b>Note:</b> If you specify SYSPSW dynamically in conjunction with any of the individual system file parameters <a href="#">FNAT</a> , <a href="#">FUSER</a> , <a href="#">FDIC</a> , <a href="#">FSEC</a> , <a href="#">FSPool</a> , <a href="#">FPROF</a> and <a href="#">FREG</a> , you must specify SYSPSW <i>before</i> any individual system file parameter.
<b>Specification within session</b>	no	



#### Notes:

1. This Natural profile parameter only applies to Adabas databases.

2. Passwords for individual system files can be specified with the subparameter *password* of the profile parameters **FNAT**, **FUSER**, **FDIC**, **FSEC**, **FSP00L**, **FPROF** and **FREG**.

# 244

## TAB - Standard Output Character Translation

---

- TAB Parameter Syntax ..... 694
- NTTAB Macro Syntax ..... 695
- Example of TAB Parameter ..... 695
- Example of NTTAB Macro ..... 695

This Natural profile parameter can be used to overwrite the definitions in the translation table [NTTAB](#) as contained in the configuration module NATCONFIG. TAB corresponds to the [NTTAB](#) macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">TAB Parameter Syntax</a> .	
<b>Default setting</b>	As specified within the macro <a href="#">NTTAB</a> in NATCONFIG.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <a href="#">NTTAB</a> is used instead.
<b>Specification within session</b>	no	



**Notes:**

1. The [NTTAB](#) table in NATCONFIG is the standard output translation table.
2. If the [CP](#) profile parameter is set to a value other than OFF, values specified with TAB are ignored. See also *Translation Tables* in the *Unicode and Code Page Support* documentation.

The following topics are covered below:

## TAB Parameter Syntax

---

The TAB parameter is specified as follows:

```
TAB=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being the character to be translated, the second character of a pair being the character into which the first character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the hexadecimal representation of that character.

Or:

```
TAB=OFF
```

With TAB=OFF all (static and dynamic) definitions are reset to the values specified in the macro [NTTAB](#) in NATCONFIG.



## NTTAB Macro Syntax

The NTTAB macro is specified as follows:

```
NTTAB a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [TAB Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTTAB, but only dynamically with the profile parameter TAB.

## Example of TAB Parameter

With the TAB parameter, you must enclose the entire string of character pairs in parentheses, for example:

```
TAB=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

## Example of NTTAB Macro

```
NTTAB 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.

---

# 245

## TAB1 - Alternative Output Translation

---

- TAB1 Parameter Syntax ..... 698
- NTTAB1 Macro Syntax ..... 699
- Example of TAB1 Parameter ..... 699
- Example of NTTAB1 Macro ..... 699

This Natural profile parameter can be used to overwrite the definitions in the translation table NTTAB1 as contained in the configuration module NATCONFIG. TAB1 corresponds to the NTTAB1 macro in the Natural parameter module.

<b>Possible settings</b>	See <i>TAB1 Parameter Syntax</i> .	
<b>Default setting</b>	As specified within the macro NTTAB1 in NATCONFIG.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro NTTAB1 is used instead.
<b>Specification within session</b>	no	



**Note:** The NTTAB1 table in NATCONFIG is the alternative output translation table for the secondary character set used when the profile/session parameter PM=C is set.

## TAB1 Parameter Syntax

---

The TAB1 parameter is specified as follows:

```
TAB1=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being the character to be translated, the second character of a pair being the character into which the first character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the hexadecimal representation of that character.

Or:

```
TAB1=OFF
```

With TAB1=OFF all (static and dynamic) definitions are reset to the values specified in the macro NTTAB1 in NATCONFIG.

## NTTAB1 Macro Syntax

The NTTAB1 macro is specified as follows:

```
NTTAB1 a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [TAB1 Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTTAB1, but only dynamically with the profile parameter TAB1.

## Example of TAB1 Parameter

With the TAB1 parameter, you must enclose the entire string of character pairs in parentheses, for example:

```
TAB1=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

## Example of NTTAB1 Macro

```
NTTAB1 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.



# 246


## TAB2 - Alternative Input Translation

---

▪ TAB2 Parameter Syntax .....	702
▪ NTTAB2 Macro Syntax .....	703
▪ Example of TAB2 Parameter .....	703
▪ Example of NTTAB2 Macro .....	703

This Natural profile parameter can be used to overwrite the definitions in the translation table NTTAB2 as contained in the configuration module NATCONFIG. TAB2 corresponds to the NTTAB2 macro in the Natural parameter module.

<b>Possible settings</b>	See <i>TAB2 Parameter Syntax</i> .	
<b>Default setting</b>	As specified within the macro NTTAB2 in NATCONFIG.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro NTTAB2 is used instead.
<b>Specification within session</b>	no	

 **Note:** The NTTAB2 table in NATCONFIG is the alternate input translation table for the secondary character set used when the profile/session parameter PM is set to PM=C.

The following topics are covered below:

## TAB2 Parameter Syntax

---

The TAB2 parameter is specified as follows:

```
TAB2=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being the character to be translated, the second character of a pair being the character into which the first character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the hexadecimal representation of that character.

Or:

```
TAB2=OFF
```

With TAB2=OFF all (static and dynamic) definitions are reset to the values specified in the macro NTTAB1 in NATCONFIG.



## NTTAB2 Macro Syntax

The NTTAB2 macro is specified as follows:

```
NTTAB2 a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [TAB2 Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTTAB2, but only dynamically with the profile parameter TAB2.

## Example of TAB2 Parameter

With the TAB2 parameter, you must enclose the entire string of character pairs in parentheses, for example:

```
TAB2=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

## Example of NTTAB2 Macro

```
NTTAB2 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.



# 247

## TABA1 - EBCDIC-to-ASCII Translation

---

- TABA1 Parameter Syntax ..... 706
- NTTABA1 Macro Syntax ..... 707
- Example of TABA1 Parameter ..... 707
- Example of NTTABA1 Macro ..... 707

This Natural profile parameter can be used to overwrite the definitions in the EBCDIC-to-ASCII translation table `NTTABA1` as contained in the configuration module `NATCONFIG`. `TABA1` corresponds to the `NTTABA1` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">TABA1 Parameter Syntax</a> .	
<b>Default setting</b>	As specified within the macro <code>NTTABA1</code> in <code>NATCONFIG</code> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTTABA1</code> is used instead.
<b>Specification within session</b>	no	

The following topics are covered below:

## TABA1 Parameter Syntax

---

The `TABA1` parameter is specified as follows:

```
TABA1=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being an EBCDIC character to be translated, the second character of a pair being the ASCII character into which the EBCDIC character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the two-byte hexadecimal representation of that character.

Or:

```
TABA1=OFF
```

With `TABA1=OFF` all (static and dynamic) definitions are reset to the values specified in the macro `NTTABA1` in `NATCONFIG`.

## NTTABA1 Macro Syntax

The NTTABA1 macro is specified as follows:

```
NTTABA1 a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [TAB A1 Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTTABA1, but only dynamically with the profile parameter TAB A1.

## Example of TAB A1 Parameter

With the TAB A1 parameter, you must enclose the entire string of character pairs in parentheses, for example:

```
TAB A1=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

## Example of NTTABA1 Macro

```
NTTABA1 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.



# 248

## TABA2 - ASCII-to-EBCDIC Translation

---

▪ TABA2 Parameter Syntax .....	710
▪ NTTABA2 Macro Syntax .....	710
▪ Example of TABA2 Parameter .....	711
▪ Example of NTTABA2 Macro .....	711

This Natural profile parameter allows you to overwrite the definitions in the ASCII-to-EBCDIC translation table `NTTABA2` as contained in the configuration module `NATCONFIG`. `TABA2` corresponds to the `NTTABA2` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">TABA2 Parameter Syntax</a> .	
<b>Default setting</b>	As specified within the macro <code>NTTABA2</code> in <code>NATCONFIG</code> .	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTTABA2</code> is used instead.
<b>Specification within session</b>	no	

## TABA2 Parameter Syntax

---

The `TABA2` parameter is specified as follows:

```
TABA2=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being an ASCII character to be translated, the second character of a pair being the EBCDIC character into which the ASCII character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the two-byte hexadecimal representation of that character.

Or:

```
TABA2=OFF
```

With `TABA2=OFF` all (static and dynamic) definitions are reset to the values specified within the macro `NTTABA2` in `NATCONFIG`.

## NTTABA2 Macro Syntax

---

The `NTTABA2` macro is specified as follows:



```
NTTABA2 a1,a2,b1,b2,c1,c2,...
```

**Notes:**

1. For an explanation of the syntax elements, see [TABA2 Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTTABA2, but only dynamically with the profile parameter TABA2.

## Example of TABA2 Parameter

---

With the TABA2 parameter, you must enclose the entire string of character pairs in parentheses, for example:

```
TABA2=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

## Example of NTTABA2 Macro

---

```
NTTABA2 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.



# 249

## TABL - SYS Library Output Translation

---

- TABL Parameter Syntax ..... 714
- NTTABL Macro Syntax ..... 715
- Example of TABL Parameter ..... 715
- Example of NTTABL Macro ..... 715

This Natural profile parameter can be used to overwrite the definitions in the translation table NTTABL as contained in the configuration module NATCONFIG. TABL corresponds to the NTTABL macro in the Natural parameter module.

<b>Possible settings</b>	See <i>TABL Parameter Syntax</i> .	
<b>Default setting</b>	As specified within the macro NTTABL in NATCONFIG.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro NTTABL is used instead.
<b>Specification within session</b>	no	



**Note:** The NTTABL table in NATCONFIG is used to translate output produced by programs located in SYS... libraries.

## TABL Parameter Syntax

---

The TABL parameter is specified as follows:

```
TABL=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being the character to be translated, the second character of a pair being the character into which the first character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the two-byte hexadecimal representation of that character.

Or:

```
TABL=OFF
```

With TABL=OFF all (static and dynamic) definitions are reset to the values specified within the macro NTTABL in NATCONFIG.

## NTTABL Macro Syntax

The NTTABL macro is specified as follows:

```
NTTABL a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [TABL Parameter Syntax](#).
2. The value OFF cannot be specified with the macro NTTABL, but only dynamically with the profile parameter TABL.

## Example of TABL Parameter

With the TABL parameter, you must enclose the entire string of character pairs in parentheses, for example:

```
TABL=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

## Example of NTTABL Macro

```
NTTABL 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.



# 250 TC - Trailing Characters

---

With this session parameter, you can specify trailing characters that are to be displayed immediately to the right of a field output with a `DISPLAY` statement. The width of the output column is enlarged accordingly.

<b>Possible settings</b>	any character	Up to 10 characters may be specified.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	FORMAT	Parameter may be specified dynamically with the <code>FORMAT</code> statement.
	DISPLAY	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. Trailing characters may optionally be specified enclosed within apostrophes, in which case any characters can be specified. Any character string specified which contains a closing parenthesis or a quotation mark must be enclosed within apostrophes.
2. The parameter `TC` can also be used with `U` format fields. For information on Unicode format, see also *Unicode and Code Page Support in the Natural Programming Language, Session Parameters, EMU, ICU, LCU, TCU versus EM, IC, LC, TC*.
3. See also *Parameters to Influence the Output of Fields in the Programming Guide*.

**Examples:**

```
FORMAT TC=*  
DISPLAY (TC='*B*')
```



# 251 TCU - Unicode Trailing Characters

---

With this session parameter, you can specify trailing characters that are to be displayed immediately to the right of a field output with a `DISPLAY` statement. The width of the output column is enlarged accordingly.

<b>Possible settings</b>	any character	Up to 10 characters may be specified.
<b>Default setting</b>	none	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	<code>FORMAT</code>	Parameter may be specified dynamically with the <code>FORMAT</code> statement.
	<code>DISPLAY</code>	Parameter may be specified at statement level and/or at element level.
<b>Applicable command</b>	none	



## Notes:

1. Trailing characters may optionally be specified enclosed within apostrophes, in which case any characters can be specified. Any character string specified which contains a closing parenthesis or a quotation mark must be enclosed within apostrophes.
2. The session parameter `TCU` is identical to the session parameter `TC`. The difference is that the trailing characters are always stored in Unicode format. This allows you to specify trailing characters with mixed characters from different code pages, and assures that always the correct character is displayed independent of the installed system code page.

See also:

- *Parameters to Influence the Output of Fields in the Programming Guide*
- *Unicode and Code Page Support in the Natural Programming Language, Session Parameters, EMU, ICU, LCU, TCU versus EM, IC, LC, TC*



# 252

## TD - Time Differential

This Natural profile parameter specifies a time differential to be applied to the Natural time/date setting to ensure that the current local time/date is used, rather than the computer center time/date.

<b>Possible settings</b>	AUTO	During session initialization, Natural compares the physical (store clock) and logical (system environment) machine times and uses the difference between the two as the setting for the TD parameter. For a time change to take effect for Natural (for example, to change time to summer time or back to winter time), it is therefore sufficient to reset the logical machine time. This affects only those sessions which were started after the time change.
	+/- hh (+/- hh, mm) (+/- hh, mm, ss)	Hours, minutes and seconds from (-23, 59, 59) to (+23, 59, 59). A plus (optional) or minus sign indicates, whether the TD value is to be added or subtracted.  The specified time is added to or subtracted from the physical machine time to set the time/date to be used by Natural.
	1 to 32 characters	Name of the time zone to be used. This must be defined as a valid time zone in the NTTZ macro of the NATCONFIG module, see <i>Configuration Tables - Module NATCONFIG</i> . If the time changes according to the DST definition in NATCONFIG for the time zone, this is honored during a running session.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



**Note:** This parameter is applicable in an environment in which remote nodes are being used in a computer network.

### **z/VSE-Specific Information**

With VSE-type operating systems, `// ZONE` and `//DATE JCL` statements are honored with `TD=AUTO`. This can also affect the setting of the profile parameter `DD`.

See also the profile parameters [YD](#) and [DD](#).

### **Examples**

```
TD=6           (6 hours ahead)
TD=(5,30)      (5 hours and 30 minutes ahead)
TD=(-6,12,30) (6 hours, 12 minutes and 30 seconds behind)
TD='USA-EST'   (eastern time zone as defined in NTTZ macro)
```

# 253

## TF - Translation of Database ID/File Number

---

- TF Parameter Syntax ..... 724
- NTTF Macro Syntax ..... 725
- Example of TF Parameter ..... 725
- Example of NTTF Macro ..... 725

This Natural profile parameter can be used to translate a database ID/file number into another database ID/file number during the execution of an application. It corresponds to the macro `NTTF` in the Natural parameter module.

<b>Possible settings</b>	See <i>TF Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTTF</code> is used instead.
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1034N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.  * Recommended.
	USR2005N *	



**Notes:**

1. This parameter applies to user files only. It does not apply to system files.
2. This feature is relevant when developing an application in a production environment. It enables you to develop an application in a test database and then transfer the finished application to the production database without having to change or re-compile the application. The Natural objects are cataloged with the production DBID/FNR, but whenever a database access is executed, the production DBID/FNR is translated into the test DBID/FNR according to the `TF` parameter specifications; that is, the test database is used. This means that testing can take place in the actual production environment, but not with production data.
3. The `TF` parameter or the `NTTF` macro can be specified several times so as to specify different combinations of file numbers.

## TF Parameter Syntax

---

The `TF` profile parameter is specified as follows:

```
TF=(production-dbid,production-fnr,test-dbid,test-fnr)
```

Where:

Syntax Element	Value	Explanation
<i>production-dbid</i>	0 - 254 or 256 - 65535 or *	Identification of the production database. An asterisk (*) can be used as a wildcard for all database IDs.  <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see profile parameter <a href="#">LFILE</a> .
<i>production-fnr</i>	1 - 65535 or *	File number of the production database. An asterisk (*) can be used as a wildcard for all file numbers.
<i>test-dbid</i>	0 - 254 or 256 - 65535 or *	Identification of the test database. An asterisk (*) can be used, which leaves the database ID unchanged.
<i>test-fnr</i>	1 - 65535 or *	File number of the test database. An asterisk (*) can be used, which leaves the file number unchanged.

## NTTF Macro Syntax

The NTTF macro is specified as follows:

```
NTTF production-dbid,production-fnr,test-dbid,test-fnr
```

For explanations of the syntax elements and possible values, see [TF Parameter Syntax](#).

## Example of TF Parameter

```
TF=(777,39,17,88),TF=(251,*,9,*)
```

## Example of NTTF Macro

Equivalent specification in the Natural parameter module:

```
NTTF 777,39,17,88
NTTF 251,*,9,*
```





# 254

## THSEPCH - Thousands Separator Character

This Natural profile and session parameter is used to specify the character to be used as thousands separator at runtime. Then the thousands separator character replaces the dynamic thousands separators in edit masks.

<b>Possible settings</b>	any character	At runtime, the dynamic thousands separator is replaced with this character.  <b>Note:</b>  1. If the thousands separator character is to be a comma, it must be enclosed in quotes, that is, THSEPCH=' , ' when using the dynamic parameter facility, because a comma is used to separate individual parameters.  2. If the thousands separator character is to be a quote, it must be specified as two quotes enclosed in quotes, that is, THSEPCH=' ' ' ' .
<b>Default setting</b>	, (comma)	<b>Note:</b> By default, a comma is used as thousands separator.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	none	
<b>Applicable command</b>	GLOBALS	



**Note:** In the Natural source, the dynamic thousands separator is always represented by a comma (,) or a period (.).

See also:

- Option THSEP of system command COMPOPT in the *System Commands* documentation.
- Keyword subparameter THSEP of profile parameter CMPO or macro NTCMPO.

- *Customizing Separator Character Displays in the Programming Guide.*

# 255

## THSIZE – Thread Size

---

To improve the processing performance, this Natural profile parameter can be used to define the size of a storage thread for running in z/OS or z/VSE batch mode or under TSO.

<b>Possible settings</b>	256 - 2097151 or 0	Thread size in KB.
<b>Default setting</b>	0	No thread used.
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter does not have any effect on other environments where threads are used already, for example, server environments.
2. The storage thread is allocated during session start. Natural tries to satisfy all storage requests (GETMAIN/FREEMAIN) within this thread instead of passing it to the operating system. The thread must be large enough to contain all fixed size buffers. If the thread is full, variable sized buffers may be allocated outside the thread, provided that profile parameter [OVSIZE](#) allows this.
3. The profile parameter THSIZE is ignored if it is specified in a parameter string activated by a [SYS](#) or [PROFILE](#) profile parameter or in an alternative Natural parameter module (as specified with the [PARM](#) profile parameter).
4. If the zIIP Enabler for Natural is installed and active (z/OS batch and TSO only), an appropriate setting of THSIZE can reduce the number of switches into TCB mode, because of the reduced number of physical GETMAINS. The same applies if profile parameter [WPSIZE](#) is used.

**Example:**

```
THSIZE=5000
```

# 256

## TMODEL - IBM 3270 Terminal Model

This Natural profile parameter controls the IBM 3270 terminal model number for online environments, for example, under IMS TM.

<b>Possible settings</b>	0	The screen size is determined by the environment-dependant driver module.  <b>Note:</b>  1. If possible, it gets the screen size information from its subsystem. 2. Otherwise, the definitions of default Model 2 are used, for example, under IMS TM or for the Natural Web I/O Interface.
	2	The screen size is 24 lines and 80 columns.
	3	The screen size is 32 lines and 80 columns.
	4	The screen size is 43 lines and 80 columns.
	5	The screen size is 27 lines and 132 columns.
	( <i>lines, cols</i> )	This syntax is allowed for NWO server terminals only. The number of lines ( <i>lines</i> ) can be 24 through 250, and the number of columns ( <i>cols</i> ) can be 80 through 250.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter is for IBM mainframes only, or for the Natural Web I/O Interface.
2. It is used to determine the number of lines and columns of the terminal screen.

3. If your TMODEL specification is incompatible with the physical terminal screen size, the output data may be displayed incorrectly or hardware errors may occur.
4. This Natural profile parameter can be also used under the Natural Development Server (NDV) and for the Natural Web I/O Interface (NWO) server in any operating system environment for defining the terminal screen size for the Natural Web I/O Interface.
5. For further information, refer to the Natural Development Server documentation, *Configuring the Natural Development Server*, or to the *Natural Web I/O Interface* documentation.
6. The terminal screen size has a direct influence on the storage required for the terminal I/O buffers used by Natural.
7. Under CICS, this parameter is ignored for terminal bound sessions, because the terminal screen size is defined by the CICS terminal control table. If your TMODEL specification is incompatible with the physical terminal screen size, the output data may be displayed incorrectly or hardware errors may occur.

# 257

## TPF (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.





# 258

## TQ - Translate Quotation Marks

---

This parameter has been replaced by the keyword subparameter `TQMARK` of profile parameter `CMPO`.



# 259

## TRACE - Define Components to be Traced

---

▪ TRACE Parameter Syntax .....	738
▪ NTTRACE Macro Syntax .....	739
▪ Example of TRACE Parameter .....	739
▪ Example of NTTRACE Macro .....	739

This Natural profile parameter can be used to define the components for which trace data are to be written. It corresponds to the macro `NTTRACE` in the Natural parameter module.



**Caution:** Do not use this parameter without prior consultation of Software AG Support.

<b>Possible settings</b>	See <i>TRACE Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro <code>NTTRACE</code> is used instead.
<b>Specification within session</b>	no	



#### Notes:

1. This Natural profile parameter is intended primarily for Software AG internal use for debugging purposes. It *does not* activate trace recording.
2. To activate trace recording, use the profile parameters `ITRACE` (internal trace) or `ETRACE` (external trace). During the session, you can use the corresponding terminal commands `%TRI` and `%TRE`.
3. The setting lists of multiple `TRACE` parameter specifications are *not* concatenated; that is, a `TRACE` parameter overrides any previously specified `TRACE` parameter and any `NTTRACE` macro definitions.

## TRACE Parameter Syntax

The `TRACE` parameter is specified as follows:

```
TRACE=(trace-id,trace-id,...)
```

Where:

Syntax Element	Value	Explanation
<i>trace-id</i>	1-8 bytes each.	Trace IDs define the names of the Natural components to be traced. Component names have to be entered in upper case.

---

## NTTRACE Macro Syntax

---

The NTTRACE macro is specified as follows:

```
NTTRACE trace-id,trace-id,...
```



### Notes:

1. For an explanation of the syntax elements, see [TRACE Parameter Syntax](#).
2. Multiple specifications of the NTTRACE macro are concatenated to one trace list.

---

## Example of TRACE Parameter

---

```
TRACE=(NATGETM,NATFREM,DYNPARMS)
```

This specification defines traces to be written for the Natural nucleus components “Storage Acquisition”, “Storage Release” and “Dynamic Parameter Evaluation”.

---

## Example of NTTRACE Macro

---

```
NTTRACE NATGETM,NATFREM,DYNPARMS
```

This specification defines traces to be written for the Natural nucleus components “Storage Acquisition”, “Storage Release” and “Dynamic Parameter Evaluation”.



# 260

## TS - Translate Output from Programs in System

### Libraries

---

This Natural profile and session parameter is used to translate output from Natural system libraries (that is, libraries whose names begin with `SYS`) using a translation table. This may be necessary for locations which have non-standard lower-case usage (for example, Middle East or Far East countries).



**Important:** The `TS` parameter applies only to primary output (`CMPRINT`, see *Natural in Batch Mode* in the *Operations* documentation).

<b>Possible settings</b>	ON	Output is translated.  <b>Note:</b> With <code>TS=ON</code> , the profile parameter <code>LC=OFF</code> and the session parameter <code>AD=T</code> , both of which translate input to upper case, are ignored, as they would cause undesired character translation for special character sets.
	OFF	Output is not translated.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



#### Notes:

1. Error messages or warnings are translated if the English version of the text is displayed. If the text is displayed in the local language (for example, Hebrew), it is not translated into upper-

case characters. The translation of messages and warnings does not depend on the library from where the program is executed.

2. Within a Natural session, the profile parameter `TS` can be overridden by the session parameter `TS`.
3. The translation table can be modified with the `NTTABL` macro or the corresponding dynamic profile parameter `TABL`.

### **Support of TS=ON for Natural under IMS TM Messages**

All Natural under IMS TM messages are translated into upper case if `TS=ON` is specified in the Natural session.

### **Support of TS=ON for RPC Server Trace**

All messages in the Natural RPC server trace are translated into upper case if `TS=ON` is specified in the Natural RPC server session. The trace of the data from/to the client is not affected by `TS=ON` and remains unchanged.

### **Other Parameters to Provide Upper Case Translation**

In addition to honoring `TS=ON`, several Natural components provide an `UCTRAN` parameter to provide for translation of messages into upper case, even if the setting of the `TS` parameter is not (or not yet) available. These components are:

- Authorized Services Manager
- Roll Server
- Global Buffer Pool Manager under z/OS and z/VSE
- Natural Com-plete/SMARTS Interface
- Natural RPC

See *Startup Parameters* in z/OS Batch Mode and *Startup Parameters* under CICS in the *Natural RPC (Remote Procedure Call)* documentation.

For the Natural Development Server, the configuration parameter `UPPERCASE_SYSTEMMESSAGES` with similar functionality is available, for details, see *Configuring the Natural Development Server* in the *Natural Development Server* documentation.



# 261

## TSIZE - Size of Buffer for Adabas Text Retrieval

---

This Natural profile parameter specifies the size of the buffer to be used for the Adabas Text Retrieval facility.

<b>Possible settings</b>	1 - 2097151	Buffer size in KB. <b>Note:</b> If the requested space is not available, the Adabas Text Retrieval facility cannot be used.
	0	Adabas Text Retrieval facility is not used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



**Note:** Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.



# 262

## TSOP - Parameters for Natural TSO Interface

---

■ TSOP Parameter Syntax .....	746
■ NTTSOP Macro Syntax .....	746
■ Keyword Subparameters .....	747
■ Example of TSOP Parameter .....	750
■ Example of NTTSOP Macro .....	751

This Natural profile parameter is used to specify the parameters for the Natural TSO Interface. It corresponds to the macro `NTTSOP` in the Natural parameter module.

<b>Possible settings</b>	See <i>TSOP Parameter Syntax</i> .	
<b>Default setting</b>	See <i>Keyword Subparameters</i> .	
<b>Dynamic specification</b>	yes	The parameter TSOP can only be specified dynamically. In the Natural parameter module, use the macro <code>NTTSOP</code> .
<b>Specification within session</b>	no	

## TSOP Parameter Syntax

---

The TSOP parameter is specified as follows:

```
TSOP=(keyword-subparameter=value,keyword-subparameter=value,...)
```

For information on subparameter names and values, see *Keyword Subparameters*.

## NTTSOP Macro Syntax

---

The NTTSOP macro is specified as follows:

```

NTTSOP ABEXIT=value, *
      ALTSCRN=value, *
      LBPNAME=value, *
      LEHDLR=value, *
      NDBFSRV=value, *
      PA2=value, *
      SUBPOOL=value, *
      SWAPKEY=value, *
      TIOBSZ=value

```

See *Keyword Subparameters*.

## Keyword Subparameters

ABEXIT | ALTSCRN | LBPNAME | LEHDLR | NDBFSRV | PA2 | SUBPOOL | SWAPKEY | TIOBSZ

### ABEXIT - Abend Processing

ABEXIT=*value* specifies the mode of abend processing within Natural.

Value	Explanation
ESTAE	Natural intercepts all abends and issues the appropriate error messages. This is the default value.
SPIE	Only program checks (SOCX abends) are intercepted.
OFF	Natural does not intercept any abends or program checks at all.



#### Notes:

1. The setting ABEXIT=OFF corresponds to profile parameter DU=FORCE.
2. The setting ABEXIT=OFF is not recommended because some functions, which require the abend interception, will not work any longer. The usage of profile parameter MT will cause an abend U0322 instead of error NAT0953 when the CPU time limit is reached.

### ALTSCRN - Session Screen Mode

ALTSCRN=*value* specifies whether the 3270 alternate screen size is to be used.

Value	Explanation
ON	The alternate screen size is to be used. This is the default value.
OFF	The default screen size is to be used.



#### Notes:

1. There are 2 sets of screen heights/widths from the VTAM LOGMODE definition for the terminal, default and alternate screen size. Usually, the default screen size is 24 lines and 80 columns. The alternate screen size depends on the 3270 terminal model (2, 3, 4 or 5).
2. The screen size can be overwritten with Natural profile parameter TMODEL.

## LBPNAME - Sharing of Local Buffer Pools

LBPNAME=*value* controls the sharing of the local buffer pool when running multiple Natural sessions within the same TSO region. It defines the name of the shared buffer pool environment and is used to locate the shared local buffer pool.

Value	Explanation
1 - 8 characters or ' ' (blank)	Name of the shared buffer pool.
' ' (blank)	The local buffer pools are not shared.  This is the default value.



**Note:** When running multiple Natural sessions in a z/OS batch or TSO region concurrently, each session allocates storage for a separate local buffer pool. Except for the Natural z/OS batch mode server, the local buffer pools are not shared by default; that is, if the different sessions use the same Natural objects, these have to be loaded once for each session separately. If a shared buffer pool name is specified, all Natural sessions will share the same local buffer pool.

## LEHDLR - Use of an LE Error Handler for Calling LE Subprograms

LEHDLR=*value* specifies whether Natural uses an LE error handler for the call of LE subprograms.

Value	Explanation
ON	An LE error handler is set up by Natural during the call of LE subprograms. This means, if an unhandled LE error occurs during the execution of an LE subprogram, Natural will get control and can handle it (by issuing error NAT0954).  This is the default value.
OFF	No setting of an LE error handler is done by Natural during the call of LE subprograms. This means, if an unhandled error occurs during the execution of a LE subprogram, the LE enclave is terminated and so the Natural session is lost.



### Notes:

1. For information on LE runtime options, see the description of source module NATLEOPT in the *Installation for z/OS* documentation.
2. For information on Natural running with the IBM Language Environment, refer to *Natural Execution - Miscellaneous Topics, LE Subprograms* in the *Operations* documentation.

## NDBFSRV - Natural for DB2 File Server

NDBFSRV=*value* specifies whether the Natural for DB2 file server is to be used.

Value	Explanation
OFF	The Natural for DB2 file server will not be used. This is the default value.
ON	The Natural for DB2 file server is invoked at each terminal I/O.

## PA2 - Behavior of PA2 Key

PA2=*value* specifies how the PA2 key shall work.

Value	Explanation
ON	The PA2 key value is passed to the Natural application.
OFF	The PA2 key value is used to redisplay the terminal screen and is not passed to the Natural application. This is the default value.



**Note:** The PA2 subparameter specification is irrelevant if the PA2 key is defined as the split screen swap key by subparameter [SWAPKEY](#).

## SUBPOOL - Storage Subpool for GETMAIN Requests

SUBPOOL=*value* defines the storage subpool for GETMAIN requests.

Value	Explanation
1 - 127	Subpool number.
0	This is the default value.



### Notes:

1. The subparameter SUBPOOL is honored only in the Natural parameter module which is linked to the TSO driver, but not in an alternative parameter module which is activated using a [PARM=](#) specification.
2. As the subparameter SUBPOOL is evaluated during session initialization only, it cannot be specified as a dynamic subparameter.

## SWAPKEY - TSO/ISPF Split Screen Feature Support

SWAPKEY=*value* defines the TSO/ISPF split screen swap key for Natural, which is assigned to PF9 on most of the panels of Software AG product Natural ISPF (Integrated Structured Programming Facility).

Value	Explanation
PF1 - PF24	Defines the PF- or PA-key which shall be used to swap to the next TSO/ISPF session.
PA1 - PA3	
OFF	By default, no swap key is defined; that is, no split screen feature support is generated.



### Notes:

1. The specified key cannot be used by Natural applications. Usually, the SWAP command in TSO/ISPF is assigned to the PF9 key on most TSO/ISPF panels.
2. Split screen support requires the TSO/ISPF interface module ISPLINK from the ISPF load library. You can include ISPLNK in the link step for NATTSO. If not linked, Natural tries to load it dynamically when the key defined with SWAPKEY is first used in the session. If ISPLINK is not contained in the load library, Natural treats SWAPKEY as set to OFF.

## TIOBSZ - Size of the Terminal I/O Buffer

TIOBSZ=*value* specifies the size of the terminal I/O buffer.

Value	Explanation
4 - 32	Size of the terminal I/O buffer in KB.
8	This is the default setting.



**Note:** The terminal I/O buffer is allocated below the 16 MB line.

## Example of TSOP Parameter

---

```
TSOP=(LBPNAME=NATTEST1,TIOBSZ=12,SWAPKEY=PF9)
```



## Example of NTTSOP Macro

---

```
NTTSOP LBPNAME=NATTEST1,TIOBSZ=12,SWAPKEY=PF9
```



# 263

## TTYPE - Terminal Type

This Natural profile parameter allows you to specify the terminal type used - in TP environments in which this information is not supplied automatically - so that Natural can activate the appropriate converter routine for attribute sequences to operate that type of terminal.

<b>Possible settings</b>	1-4 characters	The setting specified with the TTYPE parameter must be defined as a valid terminal device type in the NTDVCE macro of the NATCONFIG module, see <i>Configuration Tables - Module NATCONFIG</i> .
<b>Default setting</b>	3270	Under z/OS, z/VSE.
	See Text.	Under BS2000/OSD:  The setting defined in PDN, unless overridden by the parameter T975X.  <b>Note:</b> See Natural <i>TP Monitor Interfaces, Natural under TIAM, Parameters in Macro NAMTIAM</i> .
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	The TTYPE parameter has the same function as the terminal command %T=.



**Note:** If you use the TTYPE parameter, it is no longer necessary to execute a program containing a SET CONTROL 'T=...' statement at the start of the session in order to set the terminal type.



# 264 UC - Underlining Character

---

This session parameter determines the character that is used as underlining character for the following:

- column headings generated by `DISPLAY` statements;
- page titles/trailers produced by `WRITE TITLE`/`WRITE TRAILER` statements with `UNDERLINED` option.

<b>Possible settings</b>	any character	See also Note.
	OFF	
<b>Default setting</b>	-	Hyphen (-).
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT WRITE TITLE WRITE TRAILER	
<b>Applicable command</b>	none	



**Note:** If you do not wish column headers to be underlined, you have the following options:

UC=	A blank line will be output instead of underlining.
UC=OFF	The field values will be output immediately below the heading line, without any blank line in between.  You can specify UC=OFF only at the statement level of a DISPLAY statement; in this case, you cannot make any other UC specifications for individual fields in that statement.

**Examples:**

```
FORMAT UC=*  
DISPLAY (UC= ) NAME AGE (UC=+)
```



**Note:** See also *Underlining Character for Titles and Headers - UC Parameter* in the *Programming Guide*.

# 265

## UCONMAX - Maximum Number of Concurrent Sessions

### for a User

---

This Natural profile parameter is used to specify the maximum number of concurrent sessions for a user.

The Natural **FREG** system file is used to register the sessions started with a value > 0 for the Natural profile parameter **UCONMAX**.

<b>Possible settings</b>	1 - 32767	Maximum number of concurrent sessions for a user.
	0	UCONMAX=0 indicates that no limit is to be in effect.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



#### Notes:

1. If the specified limit is exceeded, the Natural session is rejected and the user is notified with a corresponding Natural error message.
2. This Natural profile parameter is in effect for servers supporting the Natural Development Server and the *Natural Web I/O Interface*.





# 266

## UDB - User Database ID

This Natural profile parameter specifies the DBID to be used for a database access at runtime. This database ID specified with the `UDB` parameter replaces DBID 0 when Natural objects are executed.

<b>Possible settings</b>	0 or 1 - 65535, except 255	Valid database ID. <b>Note:</b> Database ID 255 is reserved for logical system files for Software AG products, see profile parameter <code>LFILE</code> .
<b>Default setting</b>	database ID applicable for <code>FUSER</code>	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.  * Recommended.
	USR1040N *	



### Notes:

1. The DBID 0 and the databases selected with the `UDB` parameter must be of the same type (ADA/ADA, SQL/SQL or XML/XML, for example).
2. If no DBID is specified in the DDM used, the DBID specified with the `UDB` profile parameter determines which database is accessed. Thus it is possible to have different user environments without multiple `FUSER` files being required.
3. If no DBID is specified in the DDM and the `UDB` profile parameter is not specified, the DBID that applies to the `FUSER` system file is used.



# 267

## ULANG - User Language

This Natural profile parameter specifies the language to be used for date edit masks, system messages, user messages, help texts, help routines, and multi-lingual maps. The setting is used to set the Natural system variable \*LANGUAGE.

<b>Possible settings</b>	1 - 60	Natural language code.  <b>Note:</b>  1. For example, 1 is assigned to English, 2 is assigned to German, 3 is assigned to French.  2. For a detailed list of language codes, see the table in the documentation of the *LANGUAGE variable.
<b>Default setting</b>	1	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	
<b>Application programming interface</b>	USR1005N	See SYSEXT - <i>Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. See also the note on language code related adaptation of profile parameter CP when set to ON.
2. Within the session, the language code can be specified using the terminal command %L=.
3. See also:
  - *Configuration Tables - Module NATCONFIG* in the *Operations* documentation for additional information about language indicators and possible settings.
  - *Screen Design, Skill-Sensitive User Interfaces* in the *Programming Guide*.



# 268

## UNIIO (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 269

## UPSI - Control of the User Program Switch Indicator

This Natural profile parameter adjusts the setting of the User Program Switch Indicator (UPSI) specified in the JCL. The UPSI profile parameter is mainly used for debugging and tracing in Natural under z/VSE to avoid undesired results if a UPSI setting in a JCL statement is interpreted differently by a non-Natural program.

<b>Possible settings</b>	1 - 8 characters	Any combination of the characters 0, 1 and X.  The syntax of the character string is the same as for the UPSI string in the JCL control statement.
<b>Default setting</b>	XXXXXXXX	The UPSI string in the JCL is not adjusted to the Natural parameter setting: see <a href="#">Rules for UPSI Adjustments</a> .
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

### Rules for UPSI Adjustments:

The UPSI profile parameter adjusts the UPSI specification in the JCL control statement according to the following rules:

UPSI Parameter Setting	UPSI Specification in the JCL
0	The corresponding bit in the UPSI string is set to 0.
1	The corresponding bit in the UPSI string is set to 1.
X	The corresponding bit in the UPSI string remains unchanged.
Unspecified rightmost positions	The corresponding bits in the UPSI string remain unchanged.

### Examples of UPSI Adjustments:

1. UPSI in the JCL:

11X0X001

UPSI parameter setting:

X0101

Resulting setting used by Natural:

10101001

## 2. UPSI in the JCL:

11X0X

UPSI parameter setting:

X0101111

Resulting setting used by Natural:

10101111

### Related Topics:

- *Debugging Facilities for Natural under z/VSE in the Operations documentation*
- *Using the UPSI Parameter in Natural CICS Interface Debugging Facilities in the TP Monitor Interfaces documentation*



# 270

## USER - Restrict Use of Profile Parameter Strings and Modules

---

- USER Parameter Syntax ..... 768
- NTUSER Macro Syntax ..... 769
- Example of USER Parameter ..... 769
- Example of NTUSER Macro ..... 770

This profile parameter can be used to restrict the use of dynamic parameter strings as specified in a SYSPARM profile, NTSYS macro or parameter data set (CMPRMIN), or to restrict an alternative Natural parameter module. It corresponds to the macro NTUSER in the parameter module.

<b>Possible settings</b>	See <i>USER Parameter Syntax</i> .	
<b>Default setting</b>	none	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically.  To restrict the use of an alternative Natural parameter module, the corresponding macro NTUSER is used instead.
<b>Specification within session</b>	no	



**Notes:**

1. The USER parameter applies only to the string of dynamic parameters specified *after* it.
2. When the dynamic profile parameters are evaluated and the USER parameter is encountered, Natural checks if the current user ID (that is, the current value of the system variable \*INIT-USER) is contained in the list of user IDs specified with the USER parameter. If it is not, the user receives a corresponding error message, and the processing of dynamic profile parameters is terminated immediately.

## USER Parameter Syntax

The parameter syntax of USER is as follows:

```
USER=(user-id,user-id,...),profile-parameter-string
```

Where:

Syntax Element	Explanation
<i>user-id</i>	The IDs of the users who will be allowed to use the subsequently specified string of profile parameters.
<i>profile-parameter-string</i>	String of profile parameters.

➤ **To restrict the use of a SYSPARM profile**

- Specify the USER parameter as the first parameter in the profile. The subsequent string of profile parameters in the profile, that is, the entire profile, can then only be used by the user specified with the USER parameter.

➤ To restrict the use of a parameter string defined in an NTSYS macro or in a CMPRMIN data set

- Specify the `USER` parameter as the first parameter in the parameter string defined in an `NTSYS` macro or in a `CMPRMIN` data set.

## NTUSER Macro Syntax

The `NTUSER` macro in a Natural parameter module is specified as follows:

```
NTUSER user-id,user-id,user-id,...,profile-parameter-string
NTUSER user-id,user-id,...,profile-parameter-string
```



### Notes:

1. For an explanation of the syntax elements, see [USER Parameter Syntax](#).
2. The `NTUSER` macro applies to the Natural parameter module in which it is specified. The default Natural parameter module linked to the environment-dependent Natural nucleus cannot be restricted.

➤ To restrict the use of an alternative Natural parameter module

- Specify the macro `NTUSER` in the alternative parameter module.



**Note:** When an alternative parameter module is to be used, Natural loads the alternative parameter module specified by the `PARM` parameter and checks if the current user ID (that is, the current value of the system variable `*INIT-USER`) is contained in the list of user IDs specified by the `NTUSER` macro in the alternative parameter module. If it is not, the user receives a corresponding error message, and the alternative parameter module is discarded.

## Example of USER Parameter

The following is an example of protecting a specific system file FNAT:

```
USER=(ADMIN1,ADMIN2),FNAT=(12,177,SECPASSW,74832055)
```

## Example of NTUSER Macro

---

The following is an example of protecting a Natural parameter macro:

```
NTPRM ...  
...  
NTUSER ADMIN1,ADMIN2
```

# 271 USERBUF (Internal Use)

---

This parameter is reserved for internal use by Natural.



**Caution:** Do not change its setting.



# 272

## UTAB1 - Lower-to-Upper-Case Translation

---

- UTAB1 Parameter Syntax ..... 774
- NTUTAB1 Macro Syntax ..... 775
- Example of UTAB1 Parameter ..... 775
- Example of NTUTAB1 Macro ..... 775

This Natural profile parameter can be used to overwrite the definitions in the translation table NTUTAB1 as contained in the configuration module NATCONFIG.

<b>Possible settings</b>	See <a href="#">UTAB1 Parameter Syntax</a> .	
<b>Default setting</b>	As specified within the macro NTUTAB1 in NATCONFIG.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro NTUTAB1 is used instead.
<b>Specification within session</b>	no	



**Notes:**

1. UTAB1 corresponds to the [NTUTAB1](#) macro in the Natural parameter module.
2. The NTUTAB1 table is used for lower-to-upper-case translation.
3. If the [CP](#) profile parameter is set to a value other than OFF, values specified with UTAB1 are ignored. See also *Translation Tables* in the *Unicode and Code Page Support* documentation.

## UTAB1 Parameter Syntax

---

The UTAB1 parameter is specified as follows:

```
UTAB1=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being the character to be translated, the second character of a pair being the character into which the first character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the hexadecimal representation of that character.

With the UTAB1 parameter, you must enclose the entire string of character pairs in parentheses; see [Example of UTAB1 Parameter](#).

Or:

```
UTAB1=OFF
```

With UTAB1=OFF all (static and dynamic) definitions are reset to the values specified in the macro NTUTAB1 in NATCONFIG.



## NTUTAB1 Macro Syntax

---

The NTUTAB1 macro is specified as follows:

```
NTUTAB1 a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [UTAB1 Parameter Syntax](#). For an example, see [Example of NTUTAB1 Macro](#).
2. The value OFF cannot be specified with the macro NTUTAB1, but only dynamically with the profile parameter UTAB1.

## Example of UTAB1 Parameter

---

```
UTAB1=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.

## Example of NTUTAB1 Macro

---

```
NTUTAB1 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by H'5E' is translated into 'Ä', 'ö' into the character represented by H'78', the character represented by H'FF' into the character represented by H'00', and 'ü' into 'Ü'.



# 273

## UTAB2 - Upper-to-Lower-Case Translation

---

- UTAB2 Parameter Syntax ..... 778
- NTUTAB2 Macro Syntax ..... 779
- Example of UTAB2 Parameter ..... 779
- Example of NTUTAB2 Macro ..... 779

This Natural profile parameter allows you to overwrite the definitions in the translation table NTUTAB2 as contained in the configuration module NATCONFIG.

<b>Possible settings</b>	See <a href="#">UTAB2 Parameter Syntax</a> .	
<b>Default setting</b>	As specified within the macro NTUTAB2 in NATCONFIG.	
<b>Dynamic specification</b>	yes	This parameter can only be specified dynamically. In the Natural parameter module, the macro NTUTAB2 is used instead.
<b>Specification within session</b>	no	



**Notes:**

1. UTAB2 corresponds to the [NTUTAB2](#) macro in the Natural parameter module.
2. The NTUTAB2 table is used for upper-to-lower case translation.
3. If the [CP](#) profile parameter is set to a value other than OFF, values specified with UTAB2 are ignored. See also *Translation Tables* in the *Unicode and Code Page Support* documentation.

## UTAB2 Parameter Syntax

---

The UTAB2 parameter is specified as follows:

```
UTAB2=(a1,a2,b1,b2,c1,c2,...)
```

You specify pairs of characters, the first character of a pair being a upper-case character to be translated, the second character of a pair being the lower-case character into which the upper-case character is to be translated.

You can specify each character either as the one-byte character itself (enclosed in apostrophes) or as the two-byte hexadecimal representation of that character.

With the UTAB2 parameter, you must enclose the entire string of character pairs in parentheses; see [Example of UTAB2 Parameter](#).

Or:

```
UTAB2=OFF
```

With `UTAB2=OFF` all (static and dynamic) definitions are reset to the values specified within the macro `NTUTAB2` in `NATCONFIG`.

## NTUTAB2 Macro Syntax

The `NTUTAB2` macro is specified as follows:

```
NTUTAB2 a1,a2,b1,b2,c1,c2,...
```



### Notes:

1. For an explanation of the syntax elements, see [UTAB2 Parameter Syntax](#). For an example, see [Example of NTUTAB2 Macro](#).
2. The value `OFF` cannot be specified with the macro `NTUTAB2`, but only dynamically with the profile parameter `UTAB2`.

## Example of UTAB2 Parameter

```
UTAB1=(5E,'Ä','ö',78,FF,00,'ü','Ü')
```

In this example, the character represented by `H'5E'` is translated into `'Ä'`, `'ö'` into the character represented by `H'78'`, the character represented by `H'FF'` into the character represented by `H'00'`, and `'ü'` into `'Ü'`.

## Example of NTUTAB2 Macro

```
NTUTAB2 5E,'Ä','ö',78,FF,00,'ü','Ü'
```

In this example, the character represented by `H'5E'` is translated into `'Ä'`, `'ö'` into the character represented by `H'78'`, the character represented by `H'FF'` into the character represented by `H'00'`, and `'ü'` into `'Ü'`.



# 274

## VSAM - Parameters for Natural for VSAM

---

▪ VSAM Parameter Syntax .....	782
▪ NTVSAM Macro Syntax .....	782
▪ NTVEXIT Macro Syntax .....	783
▪ NTVLSR Macro Syntax .....	783
▪ NTVTVSD Macro Syntax .....	783
▪ Keyword Subparameters .....	784
▪ Examples of NTVSAM Macro .....	797
▪ Examples of VSAM Parameter .....	798
▪ PARM - Alternative Natural Parameter Module for VSAM .....	798

This Natural profile parameter is used to specify the parameters for Natural for VSAM. It corresponds to the [NTVSAM](#) macro in the Natural parameter module, where, in addition, the macros [NTVEXIT](#), [NTVLSR](#) and [NTVTVSD](#) are used.

<b>Possible settings</b>	See <a href="#">VSAM Parameter Syntax</a> .	
<b>Default setting</b>	See default values of <a href="#">keyword subparameters</a> .	
<b>Dynamic specification</b>	yes	The parameter VSAM can only be specified dynamically. In the Natural parameter module, use the macro <a href="#">NTVSAM</a> and, in addition, the macros <a href="#">NTVEXIT</a> , <a href="#">NTVLSR</a> and <a href="#">NTVTVSD</a> .
<b>Specification within session</b>	no	

## VSAM Parameter Syntax

The VSAM parameter is specified as follows:

```
VSAM=(keyword-subparameter=value,keyword-subparameter=...)
```

See [Keyword Subparameters](#).

## NTVSAM Macro Syntax

The NTVSAM macro is specified as follows:

```
NTVSAM BTSUPP=value, *
      CLSUPP=value, *
      DDMCHK=value, *
      DDSWITE=value, *
      DFBE=value, *
      DFBN=value, *
      ENADIS=value, *
      ENAUNE=value, *
      ETSUPP=value, *
      FORMAT=(value1,value2), *
      KEYLGH=value, *
      OPSUPP=value, *
      PATH=value, *
      PSIGNF=value, *
      RETRY=(value1,value2), *
      RLS=value, *
      ROLLSIZ=value, *
      SFILE=value, *
      TAFE=value, *
```



TAFN= <i>value</i> ,	*
TIMEOUT= <i>value</i> ,	*
TSAE= <i>value</i> ,	*
TVS= <i>value</i> ,	*
UPDL= <i>value</i>	

See [Keyword Subparameters](#).



**Note:** The keyword subparameters EXIT, LSR and TVSD are not available in the NTVSAM macro. In the Natural parameter module, use the macros [NTVSAM](#), [NTVEXIT](#), [NTVLSR](#) and [NTVTVSD](#) instead.

## NTVEXIT Macro Syntax

The NTVEXIT macro is specified as follows:

```
NTVEXIT file-name,exit-name,workarea-size
```

For details, see [EXIT - File User Exits](#).

## NTVLSR Macro Syntax

The NTVLSR macro is specified as follows:

```
NTVLSR file-name,subpool
```

For details, see [LSR - Local Shared Resources Subpools](#).

## NTVTVSD Macro Syntax

The NTVTVSD macro is specified as follows:

```
NTVTVSD file-name,option
```

For details, see [TVSD – Activate DFSMS Transactional VSAM Services](#).

## Keyword Subparameters

---

BTSUPP | CLSUPP | DDMCHK | DDSWITE | DFBE | DFBN | ENADIS | ENAUNE | ETSUPP | EXIT | FORMAT | KEYLGH | LSR | OPSUPP | PATH | PSIGNF | RETRY | RLS | ROLLSIZ | SFILE | TAFE | TAFN | TIMEOUT | TSAE | TVS | TVSD | UPDL

### BTSUPP - Support of BACKOUT TRANSACTION Statement

BTSUPP=*value* specifies whether BACKOUT TRANSACTION statements are executed or not.

Value	Explanation
ON	Each BACKOUT TRANSACTION is executed and translated into an appropriate ROLLBACK command. This is the default value.
OFF	BACKOUT TRANSACTION statements are ignored.



**Note:** This subparameter is applicable only in TP and DFSMStvs environments where VSAM logging is supported.

### CLSUPP - Support of CLOSE Call at Session Termination

CLSUPP=*value* specifies whether or not a CLOSE call is executed at session termination.

Value	Explanation
ON	Each CLOSE call is executed and translated into an appropriate SYNCPOINT command. This is the default value.
OFF	Each CLOSE call is ignored.




**Note:** If a CLOSE is executed, Natural for VSAM forces an END TRANSACTION only in TP and DFSMStvs environments where VSAM logging is supported.

### DDMCHK - Support of DDM Integrity

DDMCHK=*value* checks whether the file layout and, in consequence, the DDM has changed.


Value	Explanation
ON	DDM check enabled.
OFF	DDM check disabled.  This is the default value.

 **Note:** The check is performed after each program termination at the NEXT level, through the Natural buffer pool. The DDMCHK subparameter is only relevant for development environments where DDMs are modified. In production environments, disable this feature to improve performance.

### DDSWITE - Maximum Entries in DD/DLBL Name Switch Buffer

DDSWITE=*value* specifies the maximum number of entries in the DD/DLBL name switch buffer.

Value	Explanation
0 up to TAFE= <i>value</i>	Maximum number of entries; that is 0 or a value in the range given by the maximum value specified in the TAFE subparameter.
0	This is the default value.

 **Note:** For details on switching DD names, see the application programming interface USR1047N in the SYSEXT Utility documentation.

### DFBE - Number of Decoded Format Buffer Entries

DFBE=*value* specifies the initial number of entries in the table of decoded format buffers.

Value	Explanation
1 - 1000	Average number of fields.
10	This is the default value.

#### Notes:

1. For each active Natural I/O statement (FIND, READ, UPDATE, STORE) one entry is allocated in this table.
2. When increasing DFBE or DFBN, take into consideration that the allocated storage area size is obtained by multiplying these values and not by adding them.

## DFBN - Number of Fields in Entry of Decoded Format Buffer

DFBN=*value* specifies the average number of fields contained in an entry of the decoded format buffer table.

Value	Explanation
1 - 1000	Average number of fields.
50	This is the default value.



### Notes:

1. One entry is built for each Natural I/O statement (FIND, READ, UPDATE, STORE).
2. When increasing DFBE or DFBN, take into consideration that the allocated storage area size is obtained by multiplying these values and not by adding them.

## ENADIS - Enabling Disabled Files

ENADIS=*value* is used to enable disabled files.

Value	Explanation
ON	For all disabled files accessed during the session, an EXEC CICS SET ENABLED command is executed.
OFF	All disabled files remain disabled. This is the default value.



### Notes:

1. This subparameter only applies to CICS environments and is only honored by the first file access performed in the current Natural session.
2. If this subparameter is set to OFF and the file has not been enabled, the NAT3516 error message must follow the first file access.

## ENAUNE - Enabling Unenabled Files

ENAUNE=*value* is used to enable disabled (“unenabled”) files.

Value	Explanation
ON	For all “unenabled” files accessed during the session, an EXEC CICS SET ENABLED command is executed.
OFF	All “unenabled” files remain unenabled. This is the default value.

**Notes:**

1. This subparameter only applies to CICS environments and is only honored by the first file access performed in the current Natural session.
2. If this subparameter is set to OFF and the file has not been enabled, the NAT3539 error message must follow the first file access.

**ETSUPP - Support of END TRANSACTION Statement**

ETSUPP=*value* specifies whether END TRANSACTION statements are executed or not.

Value	Explanation
ON	Each END TRANSACTION is executed and translated into an appropriate SYNCPOINT command. This is the default value.
OFF	END TRANSACTION statements are ignored.



**Note:** ETSUPP is applicable only in TP and DFSMSStvs environments where VSAM logging is supported.

**EXIT - File User Exits**

Natural for VSAM provides the facility to define one or more user exits. For each VSAM file to be accessed, one user exit can be defined. The definition of a user exit is done by using by the subparameter EXIT of profile parameter VSAM or the NTVEXIT macro in the Natural parameter module.

The subparameter EXIT is specified as follows:

```
EXIT=(dd-name,exit-name,workarea-size)
```

The macro NTVEXIT is specified as follows:

NTVEXIT *dd-name, exit-name, workarea-size*

Where:

Value	Explanation
<i>dd-name</i>	DD/DLBL/FCT name of the VSAM file to be accessed. <b>Note:</b> There is no default value.
<i>exit-name</i>	Name of the user exit. <b>Note:</b> There is no default value.
<i>workarea-size</i>	Optionally, the size of the user exit work area (in bytes) can be specified. <b>Note:</b> <ol style="list-style-type: none"> <li>1. A minimum size of 72 bytes is required, which corresponds to the size of the IBM standard register saved area; that is, 18 full words.</li> <li>2. The maximum value is 1024 bytes.</li> <li>3. The default value is 72.</li> </ol>



**Note:** All user exits must be either linked to the Natural parameter module or must be defined by means of CSTATIC or RCA techniques. For each file user exit, a separate definition with subparameter EXIT or macro NTVEXIT is required.

### User Exit Linkage Conventions

When passing control to and from the user exit, standard IBM linkage conventions and standard linkage register notations are used.

Register	Usage
R1	Address pointer to the parameter address list.  The parameter address list provides you with the addresses of the record, of LRECL, of the current function and of the work area.
R3	Address pointer to the VSAM control area (VCA).
R12	Address pointer to the Natural basic control block (BB).
R13	Address of 18-word save area.
R14	Return address.
R15	Entry address/return code.  A return code of 0 indicates a normal return of control. In all other cases, a Natural error message is returned.


The current function (see Register R1 above) indicates the way control has been passed to the user exit. Control can be passed either before or after a Natural call for VSAM (see also the `DCRREQCD` field in the `NVMDCR` macro delivered):

- With the `STORE` and `UPDATE` statements, control is passed before the call.
- With the `FIND`, `GET` and `READ` statements, control is passed after the call.

### Sample User Exit

A sample user exit `NVSEX01` is provided on the installation tape.


## FORMAT - Support of Record Formatting for STORE and UPDATE Statements

 **Note:** This section describes the new (extended) syntax of the `FORMAT` subparameter and, in addition, the **old syntax**, which is still supported for compatibility reasons.

### New (Extended) Subparameter Syntax:

`FORMAT=(value1, value2)` supports the formatting of VSAM records referenced in a `STORE` or `UPDATE` statement. Record fields that are not referenced, and therefore contain binary zeros, are converted into a format that corresponds to the field type and record length defined in the relevant DDM.

Value		Explanation
<i>value1</i>	ON	VSAM records are formatted in accordance with the corresponding DDM definitions. This is the default.
	OFF	VSAM records are not formatted and fields that are not referenced contain binary zeros.
<i>value2</i>	KEYS	All VSAM keys are formatted in accordance with the DDM field type. This is the default.
	NOKEYS	All VSAM keys are not formatted.

 **Note:** Natural for VSAM system file records are always formatted; this cannot be changed.

The following value combinations are reasonable:

<code>FORMAT=(ON, NOKEYS)</code>	All fields are formatted, excepting the keys.
<code>FORMAT=(OFF, KEYS)</code>	Only the keys are formatted.

### Old Subparameter Syntax:

The old subparameter syntax is still supported for compatibility reasons.

`FORMAT=value` supports the formatting of VSAM records referenced in a `STORE` or `UPDATE` statement.

Value	Explanation
ON	VSAM records are formatted in accordance with the corresponding DDM definitions. This is the default value.
OFF	VSAM records are not formatted and fields that are not referenced contain binary zeros.



**Notes:**

1. Record fields that are not referenced, and therefore contain binary zeros, are converted into a format that corresponds to the field type and record length defined in the relevant DDM.
2. Natural for VSAM system file records are always formatted; this cannot be changed.

**KEYLGH - Length of VSAM Keys used in I/O Statements**

KEYLGH=*value* specifies the length of VSAM keys used in Natural I/O statements.

Value	Explanation
1 - 255	Length of VSAM keys (in bytes) used in Natural I/O statements.
32	This is the default value.



**Notes:**

1. The maximum key length for a VSAM file is 255 bytes.
2. The value of this subparameter is used to calculate the size of the TSA table (Table of Sequential Access).
3. If you use VSAM system files, specify at least: 87 bytes for the FNAT, FUSER, FDIC and FSPool files, and 126 bytes for the FSEC and Natural ISPF system files.

**LSR - Local Shared Resources Subpools**

This subparameter is only required if VSAM files are used as local shared resources.



**Note:** This method results in a substantial increase of the performance of TSO and batch runs, and, at the same time, decrease the VSAM I/O rate. The definition of the usage of a local shared resources subpool per file is done by using by the subparameter LSR of profile parameter VSAM or the [NTVLSR](#) macro in the Natural parameter module.

The subparameter LSR is specified as follows:



```
LSR=(dd-name,subpool-number)
```

The macro `NTVLSR` is specified as follows:

```
NTVLSR dd-name,subpool-number
```

Value	Explanation
<i>dd-name</i>	DD/DLBL/FCT name of the VSAM file to be accessed. There is no default value.
<i>subpool-number</i>	Subpool number (ID) between 0 and 15 for z/VSE or between 0 and 255 for z/OS; see also the relevant IBM VSAM documentation. There is no default value.

Up to 200 logical files are possible. For each file a separate definition with subparameter `LSR` or macro `NTVLSR` is required.

If `ERROR=YES` is set in `NVSMISC`, all files defined with subparameter `LSR` or macro `NTVLSR` must be defined via JCL at runtime; otherwise, an appropriate Natural initialization error message is returned.

If you have defined base clusters with subparameter `LSR` or macro `NTVLSR` which contain path entries, all paths must also be defined with subparameter `LSR` or macro `NTVLSR`.

For non-path environments the following applies: If the upgrade option is active in the VSAM catalog and if a VSAM file is defined with subparameter `LSR` or macro `NTVLSR` and contains references to an alternate index (AIX), all AIX files must also be defined with subparameter `LSR` or macro `NTVLSR`.

Natural for VSAM automatically calculates the optimum pool size by using the corresponding VSAM catalog information on the files involved, and then creates separate subpools for data and index components.

In batch mode under z/OS, Natural for VSAM allocates the pools as ESO Hiperspace if the following conditions are met:

- All sizes in the VSAM catalog are at least specified as 4 KB or a multiple of this value (this is valid for both data and index components).
- The library from which Natural for VSAM was loaded is an APF-authorized library.

This condition is necessary to define the address space as *non-swappable*, which is a prerequisite for ESO Hiperspaces.

## OPSUPP - Support of Dynamic Open Calls

OPSUPP=*value* enables or disables the support of multiple different open calls within one session.

Value	Explanation
ON	Multiple different open calls are supported by calling the application programming interface USR2008N.
OFF	Multiple different open calls are not supported within one session. This is the default value.



**Note:** For further information on application programming interfaces, see the *SYSEXT Utility* documentation.

## PATH - Support of Path Processing

PATH=*value* is used to handle a secondary key as a path or as a native AIX file.

Value	Explanation
ON	All secondary keys defined in a DDM are handled as paths for AIX files.
OFF	All secondary keys are handled as AIX files.
CHECK	Natural for VSAM checks whether the secondary keys are defined as paths or as AIXs in the VSAM catalog. This is the default value.



### Notes:

1. If you use the VSAM system files FSEC and/or FSP00L, you must not specify PATH=ON; specify either PATH=OFF or PATH=CHECK.
2. If PATH=CHECK is set under CICS and/or Complete in a z/VSE environment, the startup JCL job must contain the corresponding DLBL card(s).

## PSIGNF - Support of Compiler Option PSIGNF

PSIGNF=*value* is used to handle the internal representation of positive signs of packed numbers.

Value	Explanation
ON	Natural for VSAM supports the compiler option PSIGN for a Natural object, the corresponding DDM description in the field ZONES is ignored.
OFF	Natural for VSAM uses the DDM description in field ZONES. This is the default value.

### RETRY - Support of RETRY Statement for an ON ERROR Clause

RETRY=(*value1*,*value2*) is used to support the RETRY statement for the following Natural for VSAM error messages:

- NAT3541 File :1:, control interval/record held by another user
- NAT3520 Held VSAM record modified by another user

Where:

Value	Explanation
( <i>value1</i> , <i>value2</i> )	<i>value1</i> applies to NAT3541, <i>value2</i> applies to NAT3520. Each value can be either ON or OFF.
(OFF,OFF)	This is the default value.

### RLS - Support of Record-Level Sharing

RLS=*value* is used to enable, disable or check for the support VSAM record-level sharing (RLS) under z/OS, DFSMS Version 1.6 or higher.

Value	Explanation
ON	All files are opened in RLS mode.
OFF	All files are opened in non-RLS mode (NSR, LSR). This is the default value.
CHECK	All files are checked whether they are defined as SMS-managed data sets with RLS options; if they are, the file is opened in RLS mode, if not in non-RLS mode.



#### Notes:

1. This subparameter applies to z/OS only.
2. If TVS=ON is set (see subparameter TVS below) and no VSAM file has been defined in the NTVTVSD macro (see above), set RLS=CHECK to verify that the corresponding VSAM file has been defined as recoverable data set.

### ROLLSIZ - Size of Area for Session Status Information

ROLLSIZ=*value* specifies the size of the area used by Natural to save internal session status information when a Natural transaction is terminated due to the end of a TP-monitor task.

Value	Explanation
0 or 1 - 10000	Size of the area in bytes.
550	This is the default value.



**Note:** This subparameter is applicable in a thread environment only (CICS, Com-plete, Natural as a Server).

### SFILE - Support of VSAM System Files

SFILE=*value* is used to enable, disable or check for the support VSAM system files.

Value	Explanation
ON	Support of VSAM system files.
OFF	No support of VSAM system files. This is the default value.
CHECK	Checks whether the Natural system files FNAT, FUSER and FDIC are defined as Natural for VSAM Version 8.2 VSAM system files with the required key length of 87.



**Note:** If SFILE=CHECK is set under CICS and/or Com-plete in a z/VSE environment, the startup JCL job must contain the corresponding DLBL card(s).

### TAFE - Maximum Number of DDMs per Natural Session

TAFE=*value* specifies the maximum number of DDMs per Natural session.

Value	Explanation
0 or 1 - 1000	Maximum number of DDMs.
10	This is the default value.



**Notes:**

1. Since it is possible to define several descriptors in one DDM, the TAFE subparameter has impact on the sizes of the FCT, FWA, OPV and TAF buffers (see *Buffers for Memory Management*) in the *Natural for VSAM* documentation.
2. When increasing TAFE or TAFN, take into consideration that the allocated storage area size is obtained by multiplying these values and not by adding them.

### TAFN - Average Number of DDM Fields

TAFN=*value* specifies the average number of DDM fields contained in each entry in the table of accessed VSAM files.

Value	Explanation
0 or 1 - 1000	Maximum number of DDM fields.
50	This is the default value.



**Note:** When increasing TAFE or TAFN, take into consideration that the allocated storage area size is obtained by multiplying these values and not by adding them.

### TIMEOUT - Timeout in Seconds for an RLS Request

TIMEOUT=*value* is used to support an RLS/non-RLS-file mixed environment under z/OS CICS Version 5.3 or higher in a Natural for VSAM session.

Value	Explanation
0 or 1 - 30	Timeout period in seconds.
0	This is the default value.



#### Notes:

1. This subparameter only applies to z/OS CICS Version 5.3 or higher.
2. Natural and Natural for VSAM Version 6.2 are plex-enabled; that is, after a terminal I/O the Natural session can be continued by the workload manager on a different z/OS in a different CICS 5.3, provided the resources are plex-enabled. Since this is not the case with non-RLS files, the session must be run in conversational mode as soon as a VSAM file is opened in non-RLS mode. With the TIMEOUT subparameter, you can determine that non-RLS files are to be deleted from the Natural for VSAM FCT queue. When there are no further non-RLS FCT entries for the particular Natural for VSAM session, Natural for VSAM switches to non-conversational mode, which means that z/OS Parallel Sysplex processing is possible again.

### TSAE - Maximum Number of Nested READ and FIND Statements

TSAE=*value* is used to set the maximum number of all nested READ and FIND statements.

Value	Explanation
0 or 1 - 100	Maximum number of all nested READ and FIND statements.
10	This is the default value.

### TVS - Support of DFSMStvs

TVS=*value* is used to support DFSMS Transactional VSAM Services (DFSMStvs).

Value	Explanation
ON	Support of DFSMStvs.
OFF	No support of DFSMStvs.  This is the default value.



**Notes:**

1. This subparameter applies to z/OS only.
2. If TVS is set to ON, the subparameters **BTSUPP** and **ETSUPP** are forced to ON. The subparameter **RLS** is only forced to ON if RLS has been set to OFF (RLS=CHECK is not forced to ON).

### TVSD – Activate DFSMS Transactional VSAM Services

DFSMS Transactional VSAM Services (DFSMStvs) is activated by setting either the ACB parameter RLSREAD or the JCL parameter RLS. In general, Natural for VSAM opens all VSAM files for output by default.

This subparameter activates DFSMStvs by specifying the read integrity value of the ACB parameter RLSREAD. If specifying RLSREAD in subparameter TVSD or macro NTVTVSD, you do not have to adapt the JCL to activate DFSMStvs.

If you only set VSAM subparameter TVS=ON without specifying the corresponding VSAM file definition with TVSD or macro NTVTVSD, to activate DFSMStvs, you need to modify the JCL as described below. In this case, you must specify VSAM subparameter RLS=CHECK.

The subparameter TVSD is specified as follows:

```
TVSD=(dd-name,option)
```

The macro NTVTVSD is specified as follows:

---

NTVTVSD *dd-name,option*

Where:

Value	Explanation
<i>dd-name</i>	DD/DLBL/FCT name of the VSAM file to be accessed.  There is no default value.
<i>option</i>	NRI - No read integrity (dirty read). CR - Consistent read. CRE - Consistent read explicit.  There is no default value.

### UPDL - Size of Update Table

UPDL=*value* specifies the size of the table used by the Natural interface to VSAM to save the fields of records read for subsequent updating.

Value	Explanation
0 or 1 - 500000	Size of table in bytes.
8192	Or 32768 if <code>SFILE=ON</code> is set.  This is the default value.



**Note:** Because these records are not read with hold by Natural to avoid deadlock conditions, the content of the UPDL table is used to check if any changes have been made before the update request by another user.

### Examples of NTVSAM Macro

---

```
NTVSAM  RLS=ON,PATH=ON,KEYLGH=66
NTVEXIT FILE1,EXIT1,400
NTVEXIT FILE2,EXIT2
```

## Examples of VSAM Parameter

---

```
VSAM=(RLS=ON,PATH=ON,KEYLGH=66,EXIT=(FILE1,EXIT1,400),EXIT=(FILE2,EXIT2))
```

## PARM - Alternative Natural Parameter Module for VSAM

---

If you want to use an alternative Natural parameter module for Natural for VSAM, specify the name of this module with the [PARM](#) profile parameter and link the Natural I/O module for VSAM to this module. In addition, link all Natural for VSAM user exits defined in the [NTVEXIT](#) macro to this Natural parameter module.



# 275

## VSEP - Parameters for z/VSE Batch

---

▪ VSEP Parameter Syntax .....	800
▪ NTVSEP Macro Syntax .....	800
▪ Keyword Subparameters .....	801
▪ Example of VSEP Parameter .....	806
▪ Example of NTVSEP Macro .....	806

This Natural profile parameter is used to specify the parameters for z/VSE batch. It corresponds to the NTVSEP macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">VSEP Parameter Syntax</a> .	
<b>Default settings</b>	See default values of <a href="#">keyword subparameters</a> .	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	

## VSEP Parameter Syntax

The VSEP parameter is specified as follows:

```
VSEP=(keyword-subparameter=value,keyword-subparameter=value,...)
```

The VSEP parameter covers a subset of the subparameters which are available with the NTVSEP macro. The following keyword subparameters are available with VSEP:

[CANCEL](#) | [FILMNGR](#) | [FILSCAN](#) | [FLUSH](#) | [MAXABND](#) | [RCSIZE](#) | [RJEUSER](#) | [SEGMENT](#) | [TIOBSZ](#) | [USERID](#)

For subparameter descriptions, see [Keyword Subparameters](#).

## NTVSEP Macro Syntax

The NTVSEP macro is specified as follows:

```
NTVSEP CANCEL=value, *
        FILEID=value, *
        FILMNGR=value, *
        FILSCAN=value, *
        FLUSH=value, *
        LIBRID=value, *
        MAXABND=value, *
        RCSIZE=value, *
        RJEUSER=value, *
        SEGMENT=value, *
        SPOOLID=value, *
        TIOBSZ=value, *
        USERID=value, *
        WAITIME=value
```

For subparameter descriptions, see [Keyword Subparameters](#).

## Keyword Subparameters

CANCEL | FILEID | FILMNGR | FILSCAN | FLUSH | LIBRID | MAXABND | RCSIZE | RJEUSER | SEGMENT  
| SPOOLID | TIOBSZ | USERID | WAITIME



**Note:** The VSEP parameter covers only a subset of the subparameters which are available with the NTVSEP macro. For details, see [VSEP Parameter Syntax](#).

### CANCEL - Cancel Action for Natural Job at Session Termination

CANCEL=*value* specifies how the Natural z/VSE interface proceeds at session termination.

Value	Explanation
ON	The Natural z/VSE interface cancels the Natural batch job if an error has occurred during the session.  The job is not cancelled in the case of a NAT9995 termination message or when a user terminates the session with a Natural TERMINATE statement.
OFF	The Natural z/VSE interface always terminates with a return code.  This is the default value.

### FILEID - String to Ignore VSE Label Information

FILEID=*value* specifies a string of characters which is checked against the start of a DLBL or TLBL file ID.

Value	Explanation
String of up to 8 characters.	Any character string, which must be enclosed in apostrophes if it contains special characters.
IGNORE	This is the default value.



#### Notes:

1. This subparameter can be specified only in the NTVSEP macro. It cannot be specified dynamically using the profile parameter VSEP.
2. If the string matches, the label information is ignored. This is particularly helpful when DLBL or TLBL statements for CMWKF*nn*\* and/or CMPRT*nn*\* are supplied in the (partition) standard labels, but should not be used.
3. If, for example, a // DLBL CMPRT01, '...' statement is found, it is not possible to direct a WRITE(1) output to a printer SPOOL. To do so, use the JCS statement // DLBL CMPRT01, 'IGNORE' and a suitable printer assignment of the relevant SYS*nnn*.

**FILMNGR - Management of Print or Work File in Natural**

FILMNGR=*value* specifies how a print or a work file is to be managed in Natural.

Value	Explanation
ON	The fact that there is label information for a print or a work file and the fact that LABEL=ON or LABEL=OFF is specified for an unlabelled work file indicates to Natural that this file is available. In particular, this is relevant if the Natural print and work files are to be managed by a file management system.
OFF	The logical unit number of the Natural print or work file must be assigned to the appropriate device type.  This is the default value.

**FILSCAN - Scanning of Print or Work Files**

FILSCAN=*value* specifies whether print or work files are to be scanned.

Value	Explanation
ON	The Natural z/VSE interface scans the z/VSE label area for all Natural print and work files for which no specific file access method has been defined via Natural profile parameters, as this may cause overhead.  This is the default value.
OFF	Access to all Natural print and work files must be specified explicitly via Natural profile parameters in order to be "available". This concentrates all file access efforts on the defined files.

**FLUSH - Flush Card Input Files until EOF**

FLUSH=*value* specifies how the Natural z/VSE interface is to proceed at session termination with the CMSYNIN/CMOBJIN card input files.

Value	Explanation
ON	At session termination, the Natural z/VSE interface will read the SYSIN/SYSRDR/SYSIPT card input file until EOF, unless EOF had been encountered by Natural; this means that when driving the batch mode Natural session completely with STACK data, an extra "/" has to be provided in the JCL for a CMSYNIN/CMOBJIN null file.  This is the default value.
OFF	No extra SYSIN/SYSRDR/SYSIPT card input (null) file is required, if the batch mode Natural session is completely driven with STACK data; the SYSIN/SYSRDR/SYSIPT card input file is then left as is, thus potentially resulting in INVALID STATEMENT operator prompts or job cancellation due to INVALID STATEMENT, when the Natural CMSYNIN/CMOBJIN had not been retrieved completely.

## LIBRID - String to Trigger z/VSE Library Access

LIBRID=*value* specifies a string of up to 8 characters which is checked against the start of a DLBL file ID. If it matches, the remaining portion of that file ID is scanned for information specifying a library member in a z/VSE library or library chain.

Value	Explanation
String of up to 8 characters.	Any character string, which must be enclosed in apostrophes if it contains special characters.
LIBR:	This is the default value.



**Note:** This subparameter can be specified only in the NTVSEP macro. It cannot be specified dynamically using the profile parameter VSEP.

## MAXABND - Maximum Number of Abends

MAXABND=*value* specifies the maximum number of abends which NATVSE tolerates (that is, NATVSE intercepts the abend and invokes the Natural abend handler) until it assumes an unrecoverable abend situation or abend loop and terminates the Natural session abnormally by itself.

Value	Explanation
Numeric.	Maximum number of abends.
16	This is the default value.

## RCSIZE - Default Roll Cache Size for a Server Environment

RCSIZE=*value* specifies the default roll cache size for a server environment for the case that the roll cache size is *not* passed with the Initialize Environment request.

Value	Explanation
Numeric.	Default roll cache size in KB.
0	This is the default value.



**Note:** This subparameter can be specified only in the NTVSEP macro. It cannot be specified dynamically using the profile parameter VSEP.

## RJEUSER - User ID for Submission via XPC Macro Requests

RJEUSER=*value* defines which user ID is to be set for submission via XPC macro requests.

Value	Explanation
ON or (ON,VSE)	The system variable *INIT-USER is used as the mandatory submission user ID. RJEUSER=ON is the default value.
(ON,NAT)	The system variable *USER is used as the mandatory submission user ID.
OFF	The user ID R000 is used.

## SEGMENT - Behavior at Output Spool File Close

SEGMENT=*value* specifies how the Natural z/VSE interface is to behave at CLOSE of an output SPOOL file (print or punch).

Value	Explanation
ON	A file close is accompanied by a POWER segment close unless CLOSE=FIN is in effect for that file.
OFF	The SPOOL file is closed without closing the POWER segment. This is the default value.

## SPOOLID - String to Trigger Direct POWER SPOOL Access

SPOOLID=*value* specifies a string which is checked against the start of a DLBL file ID or the file ID of a DEFINE PRINTER or DEFINE WORK FILE statement.

Value	Explanation
String of up to 8 characters.	Any character string, which must be enclosed in apostrophes if it contains special characters. If it matches, the output will be directly spooled to POWER using POWER SPOOL access services.
SPL2PWR	This is the default value.



**Note:** This subparameter can be specified only in the NTVSEP macro. It cannot be specified dynamically using the profile parameter VSEP.

## TIOBSZ - Size of Natural I/O Buffer

TIOBSZ=*value* specifies the size of the Natural I/O buffer which is used for all input and output operations.

Value	Explanation
Minimum: 8	Size of the Natural I/O buffer in KB.
8	This is the default value.

## USERID - Content of System Variable \*INIT-USER

USERID=*value* specifies the content of the system variable \*INIT-USER.

Value	Explanation
ON	The following logic applies: <ul style="list-style-type: none"> <li>■ if a z/VSE user ID is specified in JCL (// ID USER=xxx), this user ID is taken;</li> <li>■ otherwise, if a POWER from-user is specified in JCL (* \$\$ JOB FROM=xxx), this user ID is taken;</li> <li>■ otherwise, the VSE job name is taken for the Natural user ID.</li> </ul>
OFF	The VSE job name is taken for the Natural user ID. This is the default value.

## WAITIME - Time Limit for Session Roll-Out

WAITIME=*value* specifies a time limit for session roll-out.

Value	Explanation
Numeric.	Time limit in milliseconds.
1000	This is the default value.



### Notes:

1. This subparameter applies to the CMROLL call in a Natural server environment: if the time interval passed in the CMROLL call is not less than the WAITIME interval, the session is rolled-out and the its thread is released, while the session is waiting.
2. This subparameter can be specified only in the NTVSEP macro. It cannot be specified dynamically using the profile parameter VSEP.

## Example of VSEP Parameter

---

```
VSEP=(FILMNGR=OFF,FILSCAN=OFF,FLUSH=ON,RJEUSER=(ON,NAT),SEGMENT=ON,USERID=ON)
```

## Example of NTVSEP Macro

---

```
NTVSEP FLUSH=ON, *
      FILEID=IGNORE, *
      FILMNGR=OFF, *
      FILSCAN=ON, *
      LIBRID='LIBR: ', *
      MAXABND=16, *
      RCSIZE=0, *
      RCSIZE=0, *
      RJEUSER=ON, *
      SEGMENT=OFF, *
      SPOOLID='SPL2PWR', *
      TIOBSZ=8, *
      USERID=OFF, *
      WAITIME=1000
```



# 276

## VSIZE - Size of Buffer Area for Natural for VSAM

---

This Natural profile parameter sets the maximum size of the buffer area required by Natural for VSAM. If set to 0 or if the requested space is not available, Natural for VSAM cannot be used.

<b>Possible settings</b>	1 - 512	Buffer size in KB.
	0	With <code>VSIZE=0</code> , Natural for VSAM cannot be used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter applies only if Natural for VSAM is installed.
2. If Natural for VSAM is installed, the corresponding Natural buffers are requested at the initialization of the Natural session.
3. If the requested space is not available, Natural for VSAM cannot be used. An appropriate error message at the initialization of Natural for VSAM tells you which buffer specified in the `NTVSAM` macro in the Natural parameter module does not fit into the `VSIZE` area; you can then increase the size of the `VSIZE` area.
4. If you do not need VSAM support during a Natural session, it is recommended that you invoke Natural with `VSIZE=0` to avoid overhead caused by handling of unused buffers.



# 277

## WEBIO - Web I/O Interface Screen Rendering

---

- WEBIO Parameter Syntax ..... 810
- NTWEBIO Macro Syntax ..... 810
- Keyword Subparameters ..... 811
- Example of WEBIO Parameter ..... 812
- Example of NTWEBIO Macro ..... 812

This Natural profile parameter can be used to individually enable or disable the rendering of certain features of the Natural Web I/O Interface display on the basis of a style sheet. It corresponds to the [NTWEBIO](#) macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">WEBIO Parameter Syntax</a> .	
<b>Default setting</b>	See default values of <a href="#">keyword subparameters</a> .	
<b>Dynamic specification</b>	yes	The parameter WEBIO can only be specified dynamically. In the Natural parameter module, use the macro NTWEBIO.
<b>Specification within session</b>	no	



**Notes:**

1. By default, the style sheet based rendering of the message line, PF key buttons and Natural window objects is disabled.
2. For further information, see the corresponding sections in *Using Style Sheets* in the *Natural Web I/O Interface* documentation.

The following topics are covered below:

## WEBIO Parameter Syntax

---

The WEBIO parameter is specified as follows:

```
WEBIO=(keyword-subparameter=value,keyword-subparameter=value,...)
```

For information on subparameter names and values, see [Keyword Subparameters](#).

## NTWEBIO Macro Syntax

---

The NTWEBIO macro is specified as follows:

```
NTWEBIO ML=value, *
        KEYS=value, *
        WIN=value
```

See [Keyword Subparameters](#).

## Keyword Subparameters

---

ML | KEYS | WIN

### ML - Message Line

ML=*value* enables/disables the style sheet based rendering of the message line.

Value	Explanation
ON	The style sheet based rendering of the message line is enabled.
OFF	The style sheet based rendering of the message line is disabled.



**Note:** See also *Modifying the Message Line* in the *Natural Web I/O Interface* documentation.

### KEYS - PF Keys

KEYS=*value* enables/disables the style sheet based rendering of the PF key buttons.

Value	Explanation
ON	The style sheet based rendering of the PF key buttons is enabled.
OFF	The style sheet based rendering of the PF key buttons is disabled.



**Note:** See also *Modifying the Style of the PF Key Buttons* in the *Natural Web I/O Interface* documentation.

### WIN - Window Objects

WIN=*value* enables/disables the style sheet based rendering of Natural window objects.

Value	Explanation
ON	The style sheet based rendering of Natural window objects is enabled.
OFF	The style sheet based rendering of Natural window objects is disabled.



**Note:** See also *Modifying the Natural Windows* in the *Natural Web I/O Interface* documentation.

## Example of WEBIO Parameter

---

```
WEBIO=(KEYS=ON,ML=ON)
```

## Example of NTWEBIO Macro

---

```
NTWEBIO KEYS=ON,ML=ON
```

# 278

## WH - Wait for Record in Hold Status

This Natural profile and session parameter specifies the action to be taken if a required record is not available for processing, because it has been placed in hold status by another user.

<b>Possible settings</b>	ON	The user is placed in wait status until either the requested record becomes available, or an error message is issued due to Adabas exceeding a time limit or other limit while attempting to place the record in hold status.
	OFF	An error message is returned if any of these records cannot be placed in hold status.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. This Natural profile and session parameter applies to Adabas databases only.
2. Within a Natural session, the profile parameter WH can be overridden by the session parameter WH.
3. When a Natural statement is executed which results in Adabas records being read and an update/delete operation could follow, Natural requests that Adabas places these records in hold status. See the Adabas *Command Reference* documentation for further information on hold processing.
4. Under Natural Security, the setting of this parameter can be overridden by the Session Parameters option of the *Library Profile*.





# 279

## WORK - Work-File Assignments

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▪ WORK Parameter Syntax .....	816
▪ NETWORK Macro Syntax .....	817
▪ Keyword Subparameters for All Environments .....	818
▪ Keyword Subparameters for AM=STD in All Environments .....	823
▪ Keyword Subparameters for AM=STD in z/OS Environments .....	825
▪ Keyword Subparameters for AM=STD in z/VSE Environments .....	826
▪ Keyword Subparameters for AM=STD in BS2000/OSD Environments .....	828
▪ Keyword Subparameters for AM=CICS .....	828
▪ Keyword Subparameters for AM=COMP .....	829
▪ Keyword Subparameters for AM=SMARTS .....	830

This Natural profile parameter specifies the maximum number of work files to be used during the session. It corresponds to the `NTWORK` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">WORK Parameter Syntax</a> .	
<b>Default setting</b>	See default values of the keyword subparameters described below. Depending on the access method and the environment, there may be different default settings.	
<b>Dynamic specification</b>	yes	The parameter <code>WORK</code> can only be specified dynamically. In the Natural parameter module, the macro <code>NTWORK</code> must be used.
<b>Specification within session</b>	no	



**Notes:**

1. Within a session, up to 32 logical work files (numbered 1 to 32) can be used.
2. To provide different work file definitions, `WORK` or `NTWORK` can be specified multiple times.
3. The software components for accessing work files in different environments are called access methods. For the duration of a Natural session, each logical work file can be assigned to one access method only. The access method for a work file is determined by the keyword subparameter `AM`.
4. In z/OS under TSO and in batch mode, work files need not be predefined in the JCL. Provided they are defined by subparameter `AM=STD`, they can be allocated dynamically during the session by a Natural program using the `DEFINE WORK FILE` statement or the application programming interface `USR2021` (in library `SYSEXT`).
5. See also *Print and Work File Handling with External Data Sets in a Server Environment* in the *Operations* documentation.

This document covers the following topics:

## WORK Parameter Syntax

---

With the `WORK` parameter, you first specify one or more logical work file numbers and then several keyword subparameters, which define the characteristics for these work files:

`WORK=((work-file-numbers),keyword-subparameters,...)`

Where:

Syntax Element	Description
<i>work-file-numbers</i>	<p>The file numbers must be specified first and enclosed in parentheses:</p> <ul style="list-style-type: none"> <li>■ The numbers can be from 1 to 32.</li> <li>■ They can be specified in any sequence.</li> <li>■ Multiple numbers must be separated from one another by commas or blanks.</li> <li>■ To specify a range of numbers, you can use a hyphen (-).</li> </ul>
<i>keyword-subparameters</i>	<p>The keyword subparameters (for the different environments) are described below.</p> <p>If any previous definition (or default) for the same work file exists, only the values for the specified keyword subparameters are overwritten, all other values remain unchanged.</p>

 **Note:** To provide different work file definitions, WORK can be specified multiple times.

**Examples:**

```
WORK=(( 2, 12, 18 ), AM=STD, DEST='WORK**' )
WORK=(( 1, 3, 6-11, 15 ), AM=COMP, OPEN=INITOBJ, CLOSE=CMD)
```

## NETWORK Macro Syntax


With an NETWORK macro, you first specify one or more logical work file numbers, and then several keyword subparameters, which define the characteristics for these work files:

```
NETWORK (work-file-numbers),keyword-subparameters,...
```

Where:

Syntax Element	Description
<i>work-file-numbers</i>	<p>The file numbers must be specified first and enclosed in parentheses:</p> <ul style="list-style-type: none"> <li>■ The numbers can be from 1 to 32.</li> <li>■ They can be specified in any sequence.</li> <li>■ Multiple numbers must be separated from one another by commas or blanks.</li> <li>■ To specify a range of numbers, you can use a hyphen (-).</li> </ul>

Syntax Element	Description
<i>keyword-subparameters</i>	<p>The keyword subparameters (for the different environments) are described below.</p> <p>If any previous definition (or default) for the same work file exists, only the values for the specified keyword subparameters are overwritten, all other values remain unchanged.</p>

 **Note:** To provide different work file definitions, NETWORK can be specified multiple times.

**Examples:**

```
NETWORK (2,12,18),AM=STD,DEST='WORK**'
NETWORK (1,3,6-11,15),AM=COMP,OPEN=INITOBJ,CLOSE=CMD
```

## Keyword Subparameters for All Environments

The following keyword subparameters are available for all environments:

AM | DEST | OPEN | CLOSE | LRECL | TRUNC | PAD | PADCHRO | PADCHRI

### AM - Type of Access Method

AM=*value* specifies the type of access method to be used.

Value	Access Method
STD	Standard sequential files (batch, TSO, TIAM).
COMP	Complete work files.
SMARTS	SMARTS work files. Work file on a SMARTS Portable File System (PFS).
CICS	CICS transient data or temporary storage.
PC	Entire Connection.
USER	Third-party vendor work-file interface.
OFF	<p>Unassigned. No automatic assignments if FAMSTD=OFF is set.</p> <p><b>Note:</b> WORK=OFF is equivalent to: WORK=((1-32)),AM=OFF). It does not affect any of the other keyword subparameter specifications.</p>
0	<p>Unassigned. Automatic assignments if FAMSTD=OFF is set.</p> <p>This is the default value.</p>

 **Notes:**

1. For an online session, all work files to be used have to be assigned to a specific access method.
2. For a batch session, any work files not assigned to a specific access method will be automatically detected and assigned by the standard batch access method (AM=STD), provided that they have been predefined in the JCL. See also [FAMSTD - Overwriting of Print and Work File Access Method Assignments](#).

### DEST - External Data Set Name

DEST=*value* specifies the external data set name.

Value	Explanation
1 - 8 characters or 1 - 7 characters, depending on access method and environment.	Name of the external data set.  <b>Note:</b> The DEST subparameter corresponds to <i>operand1</i> of the DEFINE WORK FILE statement, and the subparameter value can be overwritten by a DEFINE WORK FILE specification.

The meaning of the subparameter DEST depends on the access method specified with the AM subparameter:

Access Method	Meaning of Keyword Subparameter DEST
AM=STD	DEST is the logical data set name (DDNAME, LINK name, DTF name).  <b>Note:</b> <ol style="list-style-type: none"> <li>1. If the destination is to be for multiple files, two asterisks (**) have to be specified for the file number. These will be replaced by the corresponding logical file number for each work file. A DEST value including two asterisks must be enclosed in apostrophes ('), when it is used as a dynamic parameter.</li> <li>2. The default value is DEST='CMWKF**' for z/OS, z/VSE, and DEST='W**' for BS2000/OSD environments.</li> <li>3. Under z/VSE, only 7-character names are supported.</li> </ol>
AM=CICS	There is no default value for work files under CICS. Here, the DEST subparameter is mandatory; that is, CICS work files defined without a valid DEST specification are ignored.  <b>Note:</b> The Natural CICS interface also supports a variable (see TERMVAR parameter in the NCIPARM generation macro; &TID is the default) as part of the DEST value which, when being specified, is replaced by the actual CICS terminal ID; see also <i>Natural Print and Work Files under CICS</i> in the <i>TP Monitor Interfaces</i> documentation).
AM=COMP	DEST defines the name of the Com-plete SD-file. The length is restricted to a maximum of 8 characters.  <b>Note:</b>

	<ol style="list-style-type: none"> <li>1. If the file is defined with <code>TYPE=TID</code>, the <code>DEST</code> value is appended by the Complete stack level. The length is restricted accordingly to a maximum of 7 characters.</li> <li>2. SD-file names starting with '&amp;&amp;' are treated as temporary files which are deleted automatically after Natural termination.</li> </ol>
--	--

### OPEN - Time of File Opening

`OPEN=value` specifies when the file is to be opened:

Value	Explanation: The file is opened ...
INIT	for output at session initialization.
OBF	according to the default <code>OPEN</code> value for the different environments (batch, CICS, Complete, TSO).
OBJ	when the execution of the first object which accesses the file starts.  This is the default value.
INITOBF	for output at session initialization. Any subsequent re-opening of the file sets the default <code>OPEN</code> value for the different environments (batch, CICS, Complete, TSO).
OBJ1	when the execution of the first object on level 1 which accesses the file starts. Otherwise, it is opened when it is first accessed.
ACC	when it is first accessed by a statement.
INITOBJ	for output at session initialization. Any subsequent re-opening of the file will be performed when the execution of the first object which accesses the file starts.
INITOBJ1	when the execution of the first object on level 1 which accesses the file starts. Otherwise, it is opened when it is first accessed.
INITACC	for output at session initialization. Any subsequent re-opening of the file will be performed when it is first accessed by a statement.

### CLOSE - Time of File Closure

`CLOSE=value` specifies when the file is to be closed:


Value	Explanation: The file is closed ...
OBJ	when processing of the object in which it was first accessed is finished, or when command mode, <code>NEXT</code> mode or <code>MAINMENU</code> is reached.
CMD	when command mode, <code>NEXT</code> mode or <code>MAINMENU</code> is reached.  This is the default value.

Value	Explanation: The file is closed ...
FIN	at session end.  <b>Note:</b> With CLOSE=FIN, a DEFINE WORK FILE statement causes an error if the work file was opened already. A CLOSE WORK FILE statement for the work file is ignored. When the end-of-file condition occurs during the READ WORK FILE statement, Natural closes the work file immediately.
USER	This value specifies that a work file is closed only if the file is open and one of the following conditions is true: <ul style="list-style-type: none"> <li>■ a CLOSE WORK FILE statement is issued,</li> <li>■ a DEFINE WORK FILE statement is issued,</li> <li>■ session termination.</li> </ul>

### LRECL - Default and Maximum Record Length of Data Set

LRECL=*value* specifies the record length of the data set.

Value	Explanation
0 or 5 - 32767	Record length of the data set (in bytes).
0	This is the default value.

 **Note:** This subparameter is used particularly to check for truncation and padding. For more information on AM=STD, see the keyword subparameter LRECL in the section *Keyword Subparameters for AM=STD in All Environments*.

### TRUNC - Truncation of Output Records

TRUNC=*value* specifies whether the output records are truncated or not.

Possible values:

Value	Explanation
ON	Output records that are longer than the record length (LRECL) of the data set will be truncated.
OFF	Error NAT1512 will be issued if an output record is longer than the data set record length.  This is the default value.

### PAD - Padding of Output Records

PAD=*value* specifies whether the output records are padded or not (applies only to data sets of fixed record length).

Value	Explanation
ON	Output records that are shorter than the record length (LRECL) of the data set will be padded with padding characters defined by keyword subparameter PADCHRO.  This is the default value.
OFF	Error NAT1510 will be issued if an output record is shorter than the data set record length.

### PADCHRO - Padding Character of Output Records

PADCHRO=*value* specifies the character which is used for padding of output records if PAD=ON is defined for the work file.

Value	Explanation
'x ' or x'xx'	One character x within single quotes or one hex character xx.
x'00'	This is the default value.

### PADCHRI - Padding Character of Input Records

PADCHRI=*value* specifies the character which is used for padding of input records.

Value	Explanation
'x ' or x'xx'	One character x within single quotes or one hex character xx.
x'40'	Blank.  This is the default value.



## Keyword Subparameters for AM=STD in All Environments

The following keyword subparameters are available for AM=STD in all environments:

RECFM | BLKSIZE | LRECL

### RECFM - Default Record Format of Data Set

RECFM=*value* specifies the default record format of the data set.

Supported formats:

Value	Format
F	Fixed
V	Variable
U	Undefined
B	Blocked
S	Spanned
A	ASA
M	Machine control characters

Possible values or combinations of values:

Value	Explanation
F, FA, FM, FB, FBA, FBM, V, VA, VM, VB, VBA, VBM, VBS, VBSA, VBSM, U, UA, UM	These values or combinations of values that can be specified.
VB	Variable blocked.  This is the default value.



**Note:** The RECFM specification only applies if no record format is predefined in the JCL or (under z/OS only) in the data set DCB.

### BLKSIZE - Default Block Size of Data Set

BLKSIZE=*value* specifies the default block size of the data set.

Value	Explanation
0 or 8 - 32767	Default block size of the data set (in bytes).
4628	This is the default value.



**Note:** The BLKSIZE specification only applies if no block size is predefined in the JCL or (under z/OS only) in the data set DCB.

### LRECL - Default and Maximum Record Length of Data Set

LRECL=*value* specifies the record length of the data set.

Value	Explanation
0 or 5 - 32767	Record length of the data set (in bytes).
0	This is the default value.



**Notes:**

1. This subparameter is used particularly to check for truncation and padding.
2. For RECFM=V(B) the LRECL value includes a 4-byte record descriptor word.
3. If LRECL=0 is defined, the following applies: With RECFM=V(B), LRECL defaults to BLKSIZE-4. With RECFM=U, LRECL defaults to BLKSIZE. With RECFM=F(B), the maximum record length in the Natural program being executed is taken when the file is opened. If no record length from a program is available when the file is opened, for example with OPEN=INIT, this leads to an error.
4. The LRECL specification only applies if no record length is predefined in the JCL or (z/OS only) in the data set DCB.

## Keyword Subparameters for AM=STD in z/OS Environments

The following keyword subparameters are available for AM=STD in z/OS environments:

REREAD | FREE | BUFNO | DISP | VMAX

### REREAD - Closing of Tape File Data Sets

REREAD=*value* specifies the REREAD option for the closing of the tape file.

Value	Explanation
ON	The REREAD option is set for the CLOSE SVC. This causes the volume to be repositioned to reprocess the data set.  This is the default value.
OFF	The REREAD option is not set for the CLOSE SVC.

### FREE - Data Set De-allocation at File Closure

FREE=*value* specifies whether the data set is de-allocated when the file is closed.

Value	Explanation
ON	The FREE option is set for the CLOSE SVC, which means that the data set is de-allocated when it is closed (and not at step termination).
OFF	The FREE option is not set for the CLOSE SVC.  This is the default value.

### BUFNO - Default Number of z/OS I/O Buffers of Data Set

BUFNO=*value* specifies the default number of z/OS I/O buffers of the data set.

Value	Explanation
0 or 1 - 255	Default number of z/OS I/O buffers of the data set.
0	With BUFNO=0, z/OS allocates five I/O buffers per default.  This is the default value.



#### Notes:

1. The number of I/O buffers can improve the performance of work file access dramatically. Note that the storage for I/O buffers is allocated below the 16 MB line.

- The `BUFNO` specification applies only if the `BUFNO` parameter is not specified in the JCL for the data set.

### DISP - Open Work File for Modification

`DISP=value` specifies that the work file is opened for modification.

Value	Explanation
MOD	New records are added at the end of the file.  <b>Note:</b> This corresponds to the JCL DD statement subparameter <code>DISP=MOD</code> .
NOMOD	The work file is rewritten from the start.  This is the default value.

### VMAX - Control LRECL for Variable Record Format

`VMAX=value` controls the `LRECL` setting for an output file with variable record format (`RECFM=V`).

Value	Explanation
ON	Providing a non-zero <code>BLKSIZE</code> value exists for the file, <code>VMAX=ON</code> sets <code>LRECL=BLKSIZE - 4</code> for variable record format, regardless of the <code>LRECL</code> setting in the DCB or the <code>LRECL</code> subparameter.
NAT	<code>LRECL</code> is set to the length +4 of the largest record in the application program if this value is less than <code>LRECL</code> in the DCB for the data set.
OFF	<code>LRECL</code> from the DCB for the data set is used.  This is the default value.

## Keyword Subparameters for AM=STD in z/VSE Environments

---

The following keyword subparameters are available for `AM=STD` in z/VSE environments:

`SYSNR` | `LABEL` | `REWIND` | `BLOCKS` | `DISP`

**SYSNR - Logical VSE SYS Number**

SYSNR=*value* specifies the logical VSE SYS number.

Value	Explanation
1 - 99	Logical VSE SYS number.  By default, the SYS number is identical to the work file number.

**LABEL - Tape Label Processing**

LABEL=*value* specifies the tape label processing.

Value	Explanation
ON	The tape is in standard label format.  This is the default value.
OFF	The tape is unlabeled with front tape mark.
NOTM	The tape is unlabeled without front tape mark.

**REWIND - Action at File Closure**

REWIND=*value* specifies the action to be taken when a tape file is closed.

Value	Explanation
ON	The tape is rewound when the file is closed.  This is the default value.
OFF	The tape is not rewound when the file is closed.
UNLOAD	The tape is unloaded when the file is closed.

**BLOCKS - Number of Storage Blocks**

BLOCKS=*value* specifies the number of file blocks or file tracks to be allocated for a dynamic NATVSE work file.

Value	Explanation
1 - 9999	Number of file blocks or file tracks to be allocated.
20	This is the default value.



**Note:** See *NATVSE Dynamic Work File Allocation (DYNALLOC) Support in the Operations* documentation.

## DISP - Work File Disposition for VSAM/SAM

DISP=(value1,value2) specifies the disposition of a dynamic NATVSE work file controlled by VSAM/SAM.

Value Pair	Explanation
(NEW,KEEP)	File is to be reset at open and to be kept at close.  This is the default value.
(NEW,DELETE)	File is to be reset at open and to be made inaccessible at close.
(OLD,DELETE)	File is not to be reset at open and to be made inaccessible at close.
(OLD,KEEP)	File is not to be reset at open and to be kept at close.



**Note:** See *NATVSE Dynamic Work File Allocation (DYNALLOC) Support in the Operations* documentation.

## Keyword Subparameters for AM=STD in BS2000/OSD Environments

---

The following keyword subparameter is available for AM=STD in BS2000/OSD environments:

DISP

### DISP - File Open Mode

DISP=value specifies the open mode of the file.

Value	Explanation
EXT	The open mode is set to EXTEND.
NOEXT	The open mode is set to the default value OUTPUT.  This is the default value.

## Keyword Subparameters for AM=CICS

---

The following keyword subparameters are available for AM=CICS:

TYPE | DISP

## TYPE - Type of CICS Storage Medium

TYPE=*value* specifies the type of CICS storage medium to be used.

Value	Explanation
MAIN	Temporary main storage.
AUX	Temporary auxiliary storage.
TD	Transient data.



**Note:** The default value used depends on the setting of the subparameter [DEST](#). If the [DEST](#) subparameter value matches a valid CICS transient data queue, the [TYPE](#) subparameter defaults to [TD](#), otherwise [MAIN](#) will be taken as default value.

## DISP - CICS Temporary Storage Queue Disposition

DISP=(*value1*, *value2*) specifies the CICS temporary storage queue disposition.

Value Pairs	Explanation
(NEW, KEEP)	The storage queue is deleted when the file is opened. This is the default value.
(NEW, DELETE)	The storage queue is deleted when the file is opened and when it is closed.
(OLD, DELETE)	The storage queue is deleted when the file is closed.
(OLD, KEEP)	The storage queue is not deleted.



**Note:** The [DISP](#) specification does not apply to CICS extra-partition transient data queues.

## Keyword Subparameters for AM=COMP

The following keyword subparameters are available for [AM=COMP](#):

[TYPE](#) | [BLOCKS](#) | [BLKSIZE](#)

### TYPE - Type of Storage Access

TYPE=*value* specifies the type of storage access to be used.

Value	Explanation
SHR	Shared access; that is, the work file is accessible by all users.
TID	The work file is only available to the current Com-plete terminal ID.
DYN	The work file is only available to the current terminal stack level.

### BLOCKS - Number of Storage Blocks

BLOCKS=*value* specifies the number of storage blocks to be allocated.

Value	Explanation
1 - 9999	Number of storage blocks to be allocated.
20	This is the default value.

### BLKSIZE - Size of Storage Blocks

BLKSIZE=*value* specifies the default block size of the data set.

Value	Explanation
0 or 8 - 32767	Default block size of the data set (in bytes).
4628	This is the default value.

## Keyword Subparameters for AM=SMARTS

---

The following keyword subparameters are available for [AM=SMARTS](#):

[DEST](#) | [TYPE](#) | [DISP](#)



## DEST - Work File Name

DEST=*value* specifies the work file name.

Value	Explanation
1 - 8 characters.	Work file name.



### Notes:

1. Since the DEST clause is restricted to an 8 character maximum, it is useless to define a file with absolute PFS path specification.
2. The name specified in the DEST clause is relative to the work file root directory. The work file root directory is specified with the environment variable NAT\_WORK\_ROOT.
3. To specify a file with absolute path definition, use the DEFINE WORK FILE statement.

## TYPE - Type of Storage Access

TYPE=*value* specifies the type of storage access to be used.

Value	Explanation
BIN	Each line is written to the work file without terminating end-of-line character. This is the default value.
TXT	Each line is written to the work file with a terminating end-of-line character (x'15').

## DISP - File Open Mode

DISP=(*value1*, *value2*, *value3*) specifies the mode of the work file.

Value	Explanation
<i>value1</i>	<i>value1</i> specifies whether an existing file should be deleted or new data should be appended to the file.
	NEW An existing file will be deleted if the file is opened for writing. This is the default value.
	OLD or MOD New data written are appended at the end of the file.
<i>value2</i>	<i>value2</i> specifies whether a file should be kept or removed after access.
	KEEP Permanent file that will be kept after close. This is the default value.
	DELETE Temporary file that will be removed after close.
<i>value3</i>	<i>value3</i> specifies whether a user has exclusive access to the file or not.

Value	Explanation	
	SHR	Shared access; that is, the work file is accessible by all users.  This is the default value.
	OWN	Exclusive access, the work file is accessible to the current Com-lete user ID. Files with exclusive access are located in an additional directory which has the name of the current user ID.

**Example 1:**

```
DISP=(NEW,KEEP,SHR)
```

**Example 2:**

If you specify only the first value (with or without parentheses), the other values will assume their default settings:

```
DISP=(MOD)
```

or

```
DISP=MOD
```

Both specifications correspond to:

```
DISP=(MOD,KEEP,SHR)
```

# 280

## WPSIZE - Sizes of Natural Work Pools

---

This Natural profile parameter specifies the sizes of the Natural work pools below and above the 16 MB line for one Natural session.

<b>Possible settings</b>	See <i>Syntax Description</i> .	
<b>Default setting</b>	( 32 , 128 , 2097151 , 2097151 )	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. Natural uses work pools below and above the 16 MB line. In these work pools, all temporary buffers physical storage requests are satisfied.
2. Natural uses physical storage in special situations only, for example, for passing parameter areas outside the thread (while the thread is released) during the execution of the CALL statement with the “call by value option” indicated by a SET CONTROL 'P=V' statement under CICS.
3. The advantage of work pools is that, if there are many requests for physical storage, Natural can satisfy these requests by itself rather than by passing it to the operating system.

### Syntax Description

The WPSIZE parameter is specified as follows:

`WPSIZE=(size-below,size-above,maximum-below,maximum-above)`

Where:

Syntax Element	Explanation
<i>size-below</i>	<i>size-below</i> (0-1024) is the size of one work pool in KB below the 16 MB line. The value 0 means that no work pool is allocated, i.e. all requests for physical storage below 16 MB are passed directly to the operating system.
<i>size-above</i>	<i>size-above</i> (0-16384) is the size of one work pool in KB above the 16 MB line. The value 0 means that no work pool is allocated, that is, all requests for physical storage above 16 MB are passed directly to the operating system.
<i>maximum-below</i>	<i>maximum-below</i> (0-2097151) limits the total physical storage in KB which can be allocated below the 16 MB line. The value 0 means no physical storage can be allocated below the 16 MB line.
<i>maximum-above</i>	<i>maximum-above</i> (0-2097151) limits the total physical storage in KB which can be allocated above the 16 MB line. The value 0 means no physical storage can be allocated above the 16 MB line.



**Notes:**

1. If a work pool is exhausted, another work pool of the specified work pool size is allocated.
2. If the size of the requested physical storage is larger than the specified work pool size, a `GETMAIN` request for that larger size is made.
3. Subparameters not to be changed can be omitted; for example, you can specify `WPSIZE=( , 1000)` if you want to set the work pool size only above 16 MB to 1000 KB.
4. Natural allocates the work pools outside the Natural storage thread according to the specified settings. A work pool is allocated during the first request for physical storage and is released during the next terminal I/O.
5. For non-thread environments (for example, batch, TSO), the recommended setting is `WPSIZE=(0,0)`. This may save virtual storage. Exception: This recommendation does not apply if the zIIP Enabler for Natural is installed and active.
6. If the zIIP Enabler for Natural is installed and active (z/OS batch and TSO only), an appropriate setting of `WPSIZE` can reduce the number of switches into TCB mode, because of the reduced number of physical `GETMAINS`. The same applies if the profile parameter `THSIZE` is used.

# 281

## WSISIZE - Buffer for Natural Workstation Interface

---

This Natural profile parameter only applies if Natural Workstation Interface is installed.

Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the buffer size.

<b>Possible settings</b>	10 - 256	Size of buffer area in KB.  If the required space is not available, the Natural Workstation Interface cannot be used.
	0	The Natural Workstation Interface cannot be used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



# 282

## XML - Activate PARSE XML and REQUEST DOCUMENT

### Statements

---

▪ XML Parameter Syntax .....	838
▪ NTXML Macro Syntax .....	839
▪ Keyword Subparameters .....	839
▪ Examples of XML Parameter .....	845
▪ Examples of NTXML Macro .....	845

This Natural profile parameter is used to activate/deactivate the statements `REQUEST DOCUMENT` and `PARSE XML`. It corresponds to the `NTXML` macro in the Natural parameter module.

<b>Possible settings</b>	See <a href="#">XML Parameter Syntax</a> .	
<b>Default setting</b>	XML=(OFF)	
<b>Dynamic specification</b>	yes	The parameter XML can only be specified dynamically. In the Natural parameter module, use the macro <code>NTXML</code> .
<b>Specification within session</b>	no	



#### Notes:

1. As a prerequisite for using the XML profile parameter, the profile parameter `CFICU` must be set to `CFICU=ON`.
2. See also *Statements for Internet and XML Access* in the *Programming Guide*.

The following topics are covered below:

## XML Parameter Syntax

The XML parameter is specified as follows:

```
XML=(ON,keyword-subparameter=value,keyword-subparameter=value,...)
```

Or:

```
XML=(OFF,keyword-subparameter=value,keyword-subparameter=value,...)
```

Where:

Syntax Element / Value	Explanation
ON	Enable XML support according to the <a href="#">keyword subparameter</a> settings.  For the <code>PARSE XML</code> and <code>REQUEST DOCUMENT</code> statement usage, the subparameters <code>RDOC</code> and <code>PARSE</code> must be set to ON as well.
OFF	Disable XML support. Any subparameter settings are ignored.  This is the default value.
<i>keyword-subparameter</i>	Names and values of possible keyword subparameters; see <a href="#">Keyword Subparameters</a> .



## NTXML Macro Syntax

The NTXML macro is specified as follows:

```

NTXML ON *
    PARSE=value, *
    RDCP=value, *
    RDIPV6=value, *
    RDNOP=value, *
    RDP=value, *
    RDOC=value, *
    RDPPORT=value, *
    RDPPOV6=value, *
    RDPS=value, *
    RDPSV6=value, *
    RDPV6=value, *
    RDSPORT=value, *
    RDSPOV6=value, *
    RDTOUT=value, *
    RDV4MAP=value

```

Or:

```

NTXML OFF

```

For a description of the syntax elements, see [XML Parameter Syntax](#).

## Keyword Subparameters

PARSE | RDCP | RDIPV6 | RDNOP | RDOC | RDP | RDPPORT | RDPPOV6 | RDPS | RDPSV6 | RDPV6 | RDSPORT  
| RDSPOV6 | RDTOUT | RDV4MAP |



**Note:** The keyword subparameters `RDPS`, `RDPSV6`, `RDSPORT` and `RDSPOV6` are currently for z/OS only.

**PARSE - Support of PARSE XML Statement**

PARSE=*value* enables/disables the support of the PARSE XML statement.

Value	Explanation
ON	Use of the PARSE XML statement is supported.
OFF	Use of the PARSE XML statement is not supported.  This is the default value.

**RDCP - Name of the Default HTML/XML Code Page**

RDCP=*value* specifies the default code page which is assumed if *code-page-in* in the REQUEST DOCUMENT statement contains only spaces.

Value	Explanation
<i>code-page-name</i>	Name of the default code page.
ISO 8859-1:1987	This is the default value.

**RDIPV6 - Support for IPv6 for the REQUEST DOCUMENT Statement**

RDIPV6=*value* enables/disables the support for IPv6 for the REQUEST DOCUMENT statement.

Value	Explanation
ON	Use of the IPv6 protocol is enabled, if available on the local host.
OFF	Use of the IPv6 protocol is disabled.  This is the default value.

**RDNOP - Name of Local Domain**

RDNOP=*value* specifies local domain(s) which are to be addressed directly, not via the proxy.

Value	Explanation
<i>domain-name(s)</i>	Name(s) of local domains.  <b>Note:</b> <ol style="list-style-type: none"> <li>Blanks are not allowed.</li> <li>Wildcard notation for prefixes can only be used in the form *.xxx and not in the form .xxx.</li> <li>Multiple name entries must be separated by a semicolon.</li> </ol>

Value	Explanation
OFF	RDNOP=OFF means that no URL is defined.  This is the default value.



**Note:** Specification of IPv6 address or IPv6 address prefixes is possible.

### RDOC - Support of REQUEST DOCUMENT Statement

RDOC=*value* enables/disables the support of the REQUEST DOCUMENT statement.

Value	Explanation
ON	Use of the REQUEST DOCUMENT statement is supported.
OFF	Use of the REQUEST DOCUMENT statement is not supported.  This is the default value.

### RDP - URL of Proxy Server

RDP=*value* specifies the URL of the proxy server through which all internet (not intranet) HTTP requests have to be routed.

Value	Explanation
<i>url</i>	URL of the proxy server. Blanks are not allowed.
OFF	RDP=OFF means that no URL is defined.  This is the default value.

### RDPPORT - Proxy Port Number

RDPPORT=*value* specifies the port number of the proxy, if any is set.

Value	Explanation
0 or 1 - 65535	Port number.
80	This is the default value.

## RDPPOV6 - IPv6 Proxy Port Number

RDPPOV6=*value* specifies the port number of the IPv6 proxy, if any is set.

Value	Explanation
0 or 1 - 65535	Port number.
80	This is the default value.

## RDPS - URL of SSL Proxy Server

RDPS=*value* specifies the URL of the SSL proxy server through which all internet (not intranet) HTTPS requests have to be routed.

Value	Explanation
<i>url</i>	URL of the SSL proxy server. Blanks are not allowed.
OFF	RDPS=OFF means that no URL is defined.  This is the default value.



**Note:** This keyword subparameter is currently for z/OS only.

## RDPSV6 - URL of IPv6 SSL Proxy Server

RDPSV6=*value* specifies the URL of the IPv6 SSL proxy server through which all internet (not intranet) HTTPS requests have to be routed.

Value	Explanation
<i>url</i>	URL of the IPv6 SSL proxy server. Blanks are not allowed.
OFF	RDPSV6=OFF means that no URL is defined.  This is the default value.



**Notes:**

1. This keyword subparameter is currently for z/OS only.
2. Specification of an IPv6 address is possible.

## RDPV6 - URL of IPv6 Proxy Server

RDPV6=*value* specifies the URL of the IPv6 proxy server through which all internet (not intranet) HTTP requests have to be routed.

Value	Explanation
<i>url</i>	URL of the IPv6 proxy server. Blanks are not allowed.
OFF	RDPV6=OFF means that no URL is defined. This is the default value.



**Note:** Specification of an IPv6 address is possible.

## RDSPORT – SSL Proxy Port Number

RDSPORT=*value* specifies the port number of the SSL proxy, if any is set.

Value	Explanation
0 or 1 - 65535	Port number of the SSL proxy.
443	This is the default value.



**Note:** This keyword subparameter is currently for z/OS only.

## RDSPOV6 – IPv6 SSL Proxy Port Number

RDSPOV6=*value* specifies the port number of the IPv6 SSL proxy, if any is set.

Value	Explanation
0 or 1 - 65535	Port number of the IPv6 SSL proxy.
443	This is the default value.



**Note:** This keyword subparameter is currently for z/OS only.

**RDTOUT - Timeout Value for Ongoing HTTP Requests**

RDTOUT=*value* specifies the timeout (in seconds) for HTTP requests that are in progress.

This keyword subparameter is not supported by the IPv4-only load modules NAT2TCP4 (z/OS) and NCFIP482 (BS2000/OSD).

Value	Explanation
0	No timeout control provided by Natural, the default settings apply.  This is the default value.
1 - 32767	Time in seconds after which a timeout error is issued if one of the following socket functions cannot be completed within the specified interval: connect, send or receive.

**RDV4MAP - Support for IPv4-Mapped Addresses under IPv6**

RDV4MAP=*value* enables or disables the use of IPv4-mapped IPv6 addresses for URLs in symbolic notation. Numeric IPv4-mapped IPv6 addresses are always enabled in IPv6 mode.

This keyword subparameter is not supported by the IPv4-only load modules NAT2TCP4 (z/OS) and NCFIP482 (BS2000/OSD).

Value	Explanation
ON	Enabled: IPv4-mapped addresses are allowed within the IPv6 protocol.
OFF	Disabled: IPv4-mapped addresses are not allowed within the IPv6 protocol.  This is the default value.

**For Security Reasons:**

Use IPv4-mapped addresses only in IPv6 environments where no IPv4 TCP/IP stack (or dual stacking mode) is available to access IPv4-based HTTP servers. For detailed information on IPv4-mapped IPv6 addresses, refer to the appropriate IPv6 documentation.

## Examples of XML Parameter

```
XML=(ON,RDP='HTTPPROXY.MYCOMPANY.COM',RDPPORT=8080,RDPS='SSLPROXY.MYCOMPANY.COM',RDSPORT=443,RDNOP='*.MYCOMPANY.COM',RDOC=ON,PARSE=ON)
```

```
XML=(ON,RDP='HTTPPROXY.MYCOMPANY.COM',RDPPORT=8080,RDPS='SSLPROXY.MYCOMPANY.COM',RDSPORT=443,RDNOP='*.MYCOMPANY.COM;2AED:4899:200:1E00:',RDOC=ON,PARSE=ON,RDIPV6=ON,RDPV6='V6HTTPPROXY.MYCOMPANY.COM',RDPOV6=888)
```



**Note:** The keyword subparameters RDSPORT, RDSP0V6, RDPSV6 and RDPS are currently for z/OS only.

## Examples of NTXML Macro

```
NTXML ON,RDP=HTTPPROXY.MYCOMPANY.COM,*
      RDPPORT=8080,*
      RDPS=SSLPROXY.MYCOMPANY.COM,*
      RDSPORT=443,*
      RDNOP=*.MYCOMPANY.COM,*
      RDOC=ON,*
      PARSE=ON
```

```
NTXML ON,RDP=HTTPPROXY.MYCOMPANY.COM,*
      RDPPORT=8080,*
      RDPS=SSLPROXY.MYCOMPANY.COM,*
      RDSPORT=443,*
      RDNOP=*.MYCOMPANY.COM,*
      RDOC=ON,*
      RDIPV6=ON,*
      RDPV6=V6HTTPPROXY.MYCOMPANY.COM,*
      RDPSV6=V6SSLPROXY.MYCOMPANY.COM,*
      RDSP0V6=8443
```



**Note:** The keyword subparameters RDSPORT, RDSP0V6, RDPSV6 and RDPS are currently for z/OS only.





# 283

## XREF - Creation of XRef Data for Natural

---

■ Possibilities of Setting the XREF Parameter .....	848
■ XRef Data Generation .....	849
■ Extended XRef Data Generation (For Internal Use Only) .....	849

This Natural profile parameter is used to enable/disable the creation of XRef data for Natural. This parameter also determines how XRef data are treated when Natural members are processed with the Natural utilities `SYSMAIN` or `INPL` or with the Object Handler.

<b>Possible settings</b>	ON	XRef data are generated in the cases described above. Documentation premise is not checked.
	OFF	XRef data are not generated. Documentation premise is not checked.
	FORCE	A Natural object can only be cataloged if a documentation object already exists for this implementation object. XRef data are generated in the cases described above.
	DOC	A Natural object can only be cataloged if a documentation object already exists for this object. XRef data are not generated.
<b>Default setting</b>	OFF	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	none	
<b>Applicable commands</b>	XREF	

The following topics are covered below:

## Possibilities of Setting the XREF Parameter

---

There are different ways to set the Natural `XREF` parameter:

- In the Natural parameter module.
- As a dynamic parameter when starting a Natural session.
- In Natural Security. If Natural Security has been used to set the `XREF` parameter, the `XREF` command may only be used to enforce this setting (by changing from `ON` to `FORCE`, from `OFF` to `ON` or `FORCE`).
- With the Natural `XREF` command. If Natural Security is not installed, the `XREF` parameter is usually set with the Natural `XREF` command. The Natural command `XREF ?` displays the current setting of the `XREF` parameter.

## XRef Data Generation

---

XRef data is generated in two cases:

- The Natural compiler writes XRef data for Natural programs and data areas when these are cataloged (provided that the XREF parameter has been set to either ON or FORCE, see below).
- Natural Security writes XRef data for programs that are used as Startup, Restart or Error-Transaction in an application or as a special link if the XREF parameter is set to ON or FORCE in the application's Natural Security definition and a user system file is defined for the application.

The XREF parameter controls the compilation in two aspects:

- generation of XRef data in the cases described above and
- fulfilment of premise to document implementation objects. The adherence to this premise can be ensured by allowing the completion of the catalog operation only for objects that are documented in the Predict FDIC system file or in the development server file used in Natural Single Point of Development (SPoD).

## Extended XRef Data Generation (For Internal Use Only)

---

The extended XREF parameter is reserved for internal use by Natural.



# 284

## YD - Year Differential

---

This Natural profile parameter can be used to adjust the current machine date (as read by using the internal machine time) by adding/subtracting a number of years to/from it. This may be useful for countries that use different calendars.

<b>Possible settings</b>	-499 to 499	The parameter is specified as $YD=+nnn$ or $YD=-nnn$ where $nnn$ is the number of years. If the profile parameter <a href="#">MAXYEAR</a> is set to 9999, the upper value limit is 7999.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. If the current year is a leap year, but the year resulting from the YD setting is not, the 1st March will be used instead of the 29th February.
2. The year resulting from the sum of the profile parameters [TD](#), [DD](#) and YD must be in the range of 1583 through 2699. If the profile parameter [MAXYEAR](#) is set to 9999, the upper year limit is 7999




# 285

## YSLW - Year Sliding or Fixed Window

---

■ Examples of YSLW Parameter .....	855
------------------------------------	-----

This Natural profile parameter specifies the range of years covered by the “year sliding window” or “year fixed window”.

 **Note:** The sliding-window or “year fixed window” mechanism assumes a date with a 2-digit year to be within a “window” of 100 years. Within these 100 years, every 2-digit year setting is uniquely related to a specific century, so that there is no confusion about which century is meant.

<b>Possible settings</b>	Normal Setting	0	When you set the parameter to 0, the current century is assumed. No sliding or fixed-window mechanism is used.
	Sliding Window	1 - 99	By setting the parameter to a value between 1 - 99, you determine when the 100-year range begins in the past. The YSLW setting is subtracted from the current year to determine the first year of the window range.  See <a href="#">Example of a Sliding Window</a> .
	Fixed Window	1582 - 2600	By setting the parameter to a value between 1582 - 2600, you determine the first year of a 100-year range. The upper boundary of the 100-year range is evaluated by adding 99 to the value specified.  See <a href="#">Example of a Fixed Window</a> .
<b>Default setting</b>	0		No sliding or fixed-window mechanism is used.
<b>Dynamic specification</b>	yes		
<b>Specification within session</b>	no		

The YSLW parameter is evaluated at runtime when an alphanumeric date setting with a 2-digit year component is moved into a date variable. This applies to date settings which are:

- used with the mathematical function VAL;
- used with the IS(D) option in a logical condition;
- read from the stack as input data;
- or entered in a map as input data.

See also the section *Processing of Date Information* in the *Programming Guide*.



## Examples of YSLW Parameter

---

### Example of a Sliding Window

If the current year is 2014 and you specify `YSLW=40`, the sliding window will cover the years 1974 to 2073. A 2-digit year setting `nn` from 74 to 99 is then interpreted accordingly as `19nn`, while a 2-digit year setting `nn` from 00 to 73 is interpreted as `20nn`.

See also the examples under *Year Sliding Window - YSLW Parameter* and *Combinations of DFSTACK and YSLW* in the *Programming Guide*.

### Example of a Fixed Window

If you specify `YSLW=1985`, the fixed window will cover the years 1985 to 2084. A 2-digit year setting `nn` from 85 to 99 is then interpreted accordingly as `19nn`, while a 2-digit year setting `nn` from 00 to 84 is interpreted as `20nn`.



# 286

## ZD - Zero-Division Check

---

This Natural profile and session parameter specifies the action to be taken when an attempt is made to perform a division operation in which the divisor is 0.

<b>Possible settings</b>	ON	Natural issues an error message if a division by 0 is attempted.
	OFF	Natural returns a result of 0 for any division operation in which the divisor is 0.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	SET GLOBALS	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. Within a Natural session, the profile parameter ZD can be overridden by the session parameter ZD.
2. Under Natural Security, the setting of this parameter can be overridden by the *Session Parameters* option of the Library Profile.




# 287

## ZIIP - zIIP Processing (z/OS Only)

---

▪ ZIIP Parameter Syntax .....	860
▪ NTZIIP Macro Syntax .....	861
▪ Keyword Subparameters .....	861
▪ Example of ZIIP Parameter .....	864
▪ Example of NTZIIP Macro .....	864

This Natural profile parameter can be used to configure zIIP processing under Natural. It corresponds to the `NTZIIIP` macro in the Natural parameter module.

 **Note:** The `ZIIIP` setting takes effect only if the zIIP Enabler for Natural has been installed in your z/OS environment. For further information, refer to *Installing zIIP Enabler for Natural* in the *Installation for z/OS* documentation.

<b>Possible settings</b>	See <a href="#">ZIIIP Parameter Syntax</a> .	
<b>Default setting</b>	AUTO	See <a href="#">ZIIIP Parameter Syntax</a> and <a href="#">Keyword Subparameters</a> .
<b>Dynamic specification</b>	yes	The parameter <code>ZIIIP</code> can be specified dynamically only. In the Natural parameter module, use the macro <code>NTZIIIP</code> .
<b>Specification within session</b>	yes	By means of the system command <code>ZIIIP</code> , the zIIP component switch statistics can be controlled and information about zIIP processing can be displayed.

The following topics are covered below:

## ZIIP Parameter Syntax

The `ZIIIP` parameter is specified as follows:


```
ZIIIP=(state,keyword-subparameter=value,keyword-subparameter=value,...)
```

Or:

```
ZIIIP=state
```

Where *state* can be ON, OFF or AUTO.

Value	Explanation
ON	zIIP support will be activated.
OFF	zIIP support will not be activated.
AUTO	zIIP support will be activated only if there is at least one zIIP online, or if the z/OS parameter <code>PROJECTCPU=YES</code> is set in the <code>SYS1.PARMLIB</code> member <code>IEAOPT</code> .  This is the default value.
<i>keyword-subparameter</i>	See <a href="#">Keyword Subparameters</a> .

 **Note:** If specified as a list within brackets, ON, OFF or AUTO must be the first value.

## NTZIIIP Macro Syntax

The NTZIIIP macro is specified as follows:

```

NTZIIIP state, *
        IMSG=value, *
        STAT=value, *
        PRINT=value, *
        PNR=value, *
        PWCSIZE=value

```

See *Keyword Subparameters*.

For a description of *state*, see [ZIIIP Parameter Syntax](#).

## Keyword Subparameters

[IMSG](#) | [STAT](#) | [PRINT](#) | [PNR](#) | [PWCSIZE](#)

### IMSG – Natural zIIP Support Message

This keyword subparameter determines whether Natural issues a NAT7070 system message after Natural zIIP support has been successfully enabled during session initialization.

Value	Explanation
ON	The zIIP support message is issued. This is the default value.
OFF	The zIIP support message is not issued.

### STAT – zIIP Switch Component Statistics

This keyword subparameter controls the collection of component statistics for the switches into TCB-mode. The statistics can be displayed by the system command ZIIIP during the session, or the report can be triggered by the subparameter PRINT automatically at the end of the session (batch only). Moreover, it is possible to control the statistics by means of the ZIIIP command.

Value	Explanation
ON	Activate zIIP switch component statistics.
OFF	Deactivate zIIP switch component statistics. This is the default value.



**Note:** The setting of STAT can be overridden by the STAT option of the ZIIP system command and the application programming interface USR8204N which performs ZIIP command functions. See the relevant sections in the *System Commands* documentation.

### PRINT – Print zIIP Processing Information (in Batch Sessions only)

This keyword subparameter can be used to get information printed about zIIP processing automatically at the end of a batch session. It is ignored in server and TSO sessions.

Value	Explanation
INFO	Print zIIP processing general information only.
STAT	Print zIIP switch component statistics only.
ALL	Print both: zIIP processing general information and zIIP switch component statistics.
OFF	No print of zIIP processing information is generated at the end of the session. This is the default value.

### PNR – Print File for zIIP Processing Information (in Batch Sessions only)

This keyword subparameter can be used to determine the file where the information about zIIP processing (see the keyword subparameter [PRINT](#)) is printed at the end of a batch session. PNR is ignored for server and TSO sessions.


Value	Explanation
0	The information about zIIP processing is routed to the standard printer (CMPRINT). This is the default value.
1 - 31	The information about zIIP processing is routed to the specified print file. If the specified print file is unavailable during session termination, Natural returns an error message. For more information about the definition of Natural print files, see the profile parameter <a href="#">PRINT</a> .



## PWCSIZE - Size of the Cache for Print and Work Files

This keyword subparameter can be used to determine the cache sizes for print and work file I/O processing. This may be useful when running Natural in zIIP mode, because it reduces the overhead caused by switching from zIIP to GCP (general central processor) and vice versa. There is one cache for print files, one for output work files, and one for each input work file.

The advantage of the cache is that all I/O data is collected in the cache instead of accessing the file immediately. When the cache for print files or output work files fills up, the cache is flushed, that is, all records are written to their respective files at once. In case of work file input, all records for a given file are read and stored in the input cache for this file. Subsequently, Natural reads the input records directly from the input cache.

 **Caution:** The usage of PWCSIZE can have a negative impact on your application flow. For example, an application may receive sent records at a later point of time since the records are not written immediately to the desired media. Moreover, the error behavior can be different. Example: If the error NAT1507 - The work/print file is full. occurs, it is not displayed immediately. Instead, the error message NAT1532 - Error(s) during flush of print/work file cache. is displayed later during the cache flush. The error that actually occurred can then only be displayed with the system command LASTMSG. This means that an ON ERROR clause for NAT1507 no longer works.

### PWCSIZE Parameter Syntax

The subparameter PWCSIZE is specified as follows:

```
PWCSIZE=(print-size,work-input-size,work-output-size)
```

Where:

Syntax Element	Value	Explanation
<i>print-cache-size</i>	1 - 2097151	The <i>print-cache-size</i> in KB is used to allocate the cache for all print files.
	0	No cache for all print files is allocated. This is the default value.
<i>work-input-cache-size</i>	1 - 2097151	The <i>work-input-cache-size</i> in KB is used to allocate a cache for each input work file.
	0	No cache for each input work file is allocated. This is the default value.
<i>work-output-cache-size</i>	1 - 2097151	The <i>work-output-cache-size</i> in KB is used to allocate the cache for all output work files.
	0	No cache for all output work files is allocated. This is the default value.

 **Notes:**

1. The default setting is `PWCSIZE=(0,0,0)`. If you want to change a default value, you only need to specify the size to be changed, for example, `PWCSIZE=(,200)` to allocate 200 KB for the input cache only.
2. You cannot change the `PWCSIZE` setting during a session.

### Example of ZIIP Parameter

---

```
ZIIP=(ON,STAT=ON,PWCSIZE=(200,,300))
```

### Example of NTZIIP Macro

---

```
NTZIIP AUTO, *  
    STAT=ON, *  
    PWCSIZE=(500,)*,  
    PRINT=ALL
```

# 288

## ZP - Zero Printing

This Natural profile and session parameter specifies how a field which contains a setting of all zeros is to be output.

<b>Possible settings</b>	ON	Each field value which consists of all zeros is output as one zero, right justified (for numeric fields) or all zeros (for time fields).
	OFF	Each field value which consists of all zeros is suppressed.
<b>Default setting</b>	ON	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	yes	
<b>Applicable statements</b>	DISPLAY FORMAT INPUT PRINT REINPUT SET GLOBALS WRITE	
<b>Applicable command</b>	GLOBALS	
<b>Application programming interface</b>	USR1005N	See <i>SYSEXT - Natural Application Programming Interfaces</i> in the <i>Utilities</i> documentation.



### Notes:

1. This Natural profile and session parameter is used to suppress the display of a numeric field (format N, I, P or F) or time field (format T) which contains a value of all zeros.
2. Within a Natural session, the profile parameter ZP can be overridden by the session parameter ZP.
3. See also *Parameters to Influence the Output of Fields* in the *Programming Guide*.



# 289

## ZSIZE - Size of Entire DB Buffer Area

---

This Natural profile parameter specifies the size of the buffer area required by Entire DB.

<b>Possible settings</b>	1 - 64	Size of the buffer area in KB.
	0	If ZSIZE=0 or if the required space is not available, the Entire DB Interface cannot be used.
<b>Default setting</b>	0	
<b>Dynamic specification</b>	yes	
<b>Specification within session</b>	no	



### Notes:

1. This Natural profile parameter only applies to Entire DB.
2. Alternatively, you can use the equivalent Natural profile parameter [DS](#) or macro [NTDS](#) to specify the size of the buffer.

