

**Mini-micro CDS/ISIS
REFERENCE MANUAL
(Version 2.3)**

Division of Software Development and Applications
Office of Information Programmes and Services

Unesco
7, Place de Fontenoy
75700 Paris

March 1989

(c) Unesco

(c) Unesco 1989

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of Unesco.

First published 1989 by the
United Nations Educational,
Scientific and Cultural Organization,
7, Place de Fontenoy
75700 Paris, France

ISBN 92-3-102-605-5 (Unesco)

Foreword

CDS/ISIS is a menu-driven generalized Information Storage and Retrieval system designed specifically for the computerized management of structured non-numerical data bases.

One of the major advantages offered by the generalized design of the system is that CDS/ISIS is able to manipulate an unlimited number of data bases each of which may consist of completely different data elements. The CDS/ISIS user is therefore freed from the expensive task of having to design and write computer programs each time a new project requires the use of information retrieval techniques. Although some features of CDS/ISIS require some knowledge of and experience with computerized information systems, once an application has been designed the system may be used by persons having had little or no prior computer experience.

This manual describes the operations of the CDS/ISIS software and consists of tutorial parts that will teach you how to set up data bases and the operations you may perform on a given data base, as well as reference sections that you may consult as you are working with the software, explaining in detail the various system features.

For advanced users having access to computer professionals, CDS/ISIS offers an integrated programming facility allowing the development of specialized applications and/or the functional extension of the software as originally provided. The programming facility is described in the manual *CDS/ISIS Pascal* issued separately.

If you are currently using version 1 of the software, you should carefully review Part 1 of this manual, and, particularly, Section 2 which describes the installation procedures and provides guidelines for converting data bases built with version 1 so that they will continue to operate under version 2.3. The major innovations introduced in version 2.3 are summarized below:

- all programs (ISIS,ISISINV,ISISDEF,ISISPRT,ISISUTL and ISISXCH) are now integrated into a single program and accessible from a main menu. Menu jump keys are provided to directly select the most frequently needed functions. In addition, each time a menu is displayed, the two bottom lines of the screen contain data base status information giving the name of the currently selected data base, display format and worksheet, as well as the highest MFN assigned (status information is displayed as soon as a data base is selected);
- a data base may now contain over 16,000,000 record (because of this the file structure is not compatible with the one used in version 1 and require conversion);
- data integrity has been improved by flushing all master file buffers after writing or updating each record (this will prevent file corruption in case of power failures and/or abrupt program termination);
- the various categories of files (system menus and worksheets, message files and data base files) may now reside in different directories and/or drives; this feature gives you the possibility to optimize the distribution of files on your machine (and, for the VAX version, allows you to set up file protection schemes depending on the application);
- new and powerful features have been added to the formatting language, including record linking and table look up (the maximum size of a display format has also been increased from 2000 to 4000 characters);

- menu and submenu option identifiers may now be customized to match the requirements of each language;
- sort sequences (for printed outputs) may now be customized to suit the particular requirements of each language.

Giampaolo Del Bigio

Chief,
Division of Software Development and Applications
Office of Information Programmes and Services
Unesco



Contents

Foreword	iii
Part 1: INTRODUCTION	1
System overview	3
The CDS/ISIS Data Base	3
System functions	3
Data base structure	4
Data base definition files	5
Master file	5
Inverted file	6
ANY file	7
Relationships between the files	7
System architecture	7
Menus	8
Multilingual dialogue	8
Worksheets	8
System restrictions	10
Conventions used throughout this manual	10
System installation	11
Hardware requirements	11
System Parameter files	11
SYSPAR.PAR: Global parameters	11
Parameter 0: SYSPAR.PAR re-direction	12
Parameter 1: Program path	13
Parameter 2: Menu path	14
Parameter 3: Message path	14
Parameter 4: Work files path	14
Parameter 5: Data base path	14
Parameter 6: Default data base name	14
Parameter 7: Default language	15
Parameter 8: Repeatable fields separator	15
Parameter 9: Initial autotype string	15
Parameter 10: Initial edit mode	15
Function key definition parameters	15
dbn.PAR: Data base parameters	18
Installing CDS/ISIS on your computer	18
Installing CDS/ISIS on IBM PC or compatible computers and WANG PC	18
Setting up directories	18
Load INSTALL.BAT on the hard disk	19
Run INSTALL	19
Establish a path to the ISIS program	20
Create SYSPAR.PAR	20
Initial configuration requirements	20
Installing CDS/ISIS on microVAX or VAX computers	21
Load installation file on disk	21
Setting up directories	22
Run INSTALL	23

Define the CDS/ISIS invocation command	23
Define file protections	23
Create SYSPAR.PAR	23
VAX-specific features	24
Conversion of Data bases built with version 1	26

Part 2: TECHNIQUES

The Field Definition Table (FDT)	31
General data base design guidelines	31
Data elements	32
Fields and subfields	32
Repeatable fields	33
Control characters	34
Search term delimiters	34
Filing information	35
FDT Parameters	35
Field Tag	36
Field Name	36
Field length	36
Field type	36
Repeatability	37
Subfields/Pattern	37
Subfields	37
Pattern	37
Modifying the FDT	38
The Formatting Language	41
Field selectors	42
Field command	42
Subfield command	43
Extracting a fragment of a field or subfield	44
Indentation command	45
MFN command	45
Mode command	46
Horizontal and vertical spacing commands	48
Literals	50
Dummy field selectors	51
Expressions	53
Numerical expressions	53
String expressions	55
Boolean expressions	55
Functions	57
Numerical functions	58
VAL(format)	58
RSUM(format)	58
RMIN(format)	59
RMAX(format)	59
RAVR(format)	60
L(format)	60
String functions	60
F(expr-1,expr-2,expr-3)	60
REF(expression,format)	61

S(format)	65
Format exits	65
Boolean functions	66
P(field selector)	66
A(field selector)	67
IF command	67
Repeatable groups	68
Escape command	73
Format errors	74
The Field Select Table (FST)	75
FST parameters	76
Data extraction format	76
Indexing Techniques	77
Indexing technique 0	77
Indexing technique 1	77
Indexing technique 2	77
Indexing technique 3	78
Indexing technique 4	79
Field identifier	79
Inverted file FST	79
Testing the Inverted file FST	81
Modifying the Inverted file FST	84
Data entry	87
Creation of new records	88
Record editing	89
Record deletion	90
Guidelines for data entry operators	91
Entering a field	91
Subfielded fields	91
Repeatable fields	92
Pattern type fields	92
Field validation	93
Updating the Inverted file	93
The CDS/ISIS Search Language	95
Introduction	95
Search expressions	95
Types of search terms	95
Precise terms	96
Right-truncated search terms	96
ANY Terms	97
Search operators	97
Logical OR (inclusive)	98
Logical AND	98
Field level and proximity search operators	100
Logical NOT	101
Syntax of Search expressions	101
Operand qualifier	102
Developing a search strategy	103
Free text searching	105

Part 3: MENUS	109
Introduction	111
Menu hierarchy	111
Menu jump keys	111
Selecting menu options	111
Menu status information	111
Prompts	113
System worksheets	114
CDS/ISIS Services	115
Menu xXISI	115
A - ISISPAS - Advanced programming services	115
L - Change dialogue language	116
C - Change data base	116
X - Exit	116
ISISENT - Data entry services	117
Menu xXE1	117
C - Clear default values	117
D - Define default values	117
E - Edit record (or range)	118
L - Change dialog language	119
N - Create new record	119
P - Recall last modified record	119
R - Edit last search results	119
X - End data entry	120
W - Select another worksheet	120
ISISRET - Information Retrieval Services	121
Menu xXGEN	121
B - Browse Master file	121
D - Display search results	122
F - Change display format	124
G - Execute previous search	125
L - Change dialog language	126
P - Save search results	126
R - Recall query formulations	126
S - Search formulation	126
T - Display Terms Dictionary	127
X - Exit	129
ISISPRT - Sorting and printing services	131
Guidelines for setting up a print run	131
Menu xXPRT	133
L - Change dialogue language	133
P - System print worksheet	133
S - User print worksheet	134
X - Exit	134
System print worksheet xYPRT	134
Data Base Name	135
MFN limits	135
Save file name	135
First Title, Second Title and Third Title	135
Print format	136
Line width	136
Number of columns	137

Column width	137
Lines/page	138
First page number	138
EOC (End of Column) tolerance	138
Data indention	138
Sort	139
Sort Worksheet name	139
Print file name	139
Validating the print worksheet	140
User print worksheet	140
System sort worksheet xYSRT	140
Number of headings	141
Stopword file name	142
Heading format	142
Sort key parameters	143
Field Select Table	143
Heading processing indicator	144
Key length	145
Validating the sort worksheet	145
User sort worksheet	146
Creating and updating user print and sort worksheets	146
Sample print runs	147
ISISINV - Inverted file services	153
Menu xXG1	153
B - Inverted file backup	153
C - Load Inverted file	154
D - Dump Inverted file	155
F - Full Inverted file generation	156
G - Generate Link file	157
L - Change dialogue language	158
P - Print Search term dictionary	158
S - Sort Link file	159
U - Update Inverted file	160
X - Exit	160
ISISDEF - Data base definition services	161
Menu xXDEF	162
C - Define new data base	162
I - Re-initialize data base	164
L - Change dialog language	165
U - Update data base definition	165
X - Exit	165
Menu xXDBU	165
A - Update Field Definition Table	167
B - Create/update worksheet	167
C - Copy worksheet	167
D - Delete Worksheet	168
E - Create/update FST	168
F - Copy Field Select Table	168
G - Delete Field Select Table	168
H - Create/update Display format	168
I - Copy Display format	169
J - Delete Display format	169
K - List data base parameter files	169

X - Exit	170
ISISUTL - System utility services	171
Menu xXM1	171
A - Display/modify attributes	172
D - Print system messages	174
L - Change dialogue language	174
M - Create/Edit system menus	174
N - Create/edit system worksheets	174
P - Print worksheet/menu	175
X - Exit	176
Menu xXM2 - System worksheets editing options	176
C - Create new worksheet	176
D - Copy worksheet	177
E - Edit worksheet	177
F - Delete Worksheet	178
R - Restore current worksheet	178
S - Select a new worksheet	178
X - Exit	178
Menu xXM3	178
C - Create new menu	179
D - Copy menu	179
E - Edit menu	180
F - Delete Menu	180
R - Restore current menu	180
S - Select a new menu	180
X - Exit	180
ISISXCH - Master file services	181
Menu xXCH	181
B - Master file backup	181
C - Reorganize Master file	184
E - Export CDS/ISIS file	184
I - Import external file	185
L - Change dialogue language	186
R - Master file restore	186
X - Exit	187
Export worksheet xYISI	188
Data base name	189
ISO file parameters	189
Output ISO file name	189
Field separator	189
Record separator	189
Selection parameters	189
MFN limits	189
Save file name	190
Hit file?	190
Reformatting parameters	190
Reformatting FST	190
Gizmo conversion file	191
Renumber records from	192
Import worksheet xYISO	192
Data base name	192
ISO file parameters	192
Input ISO file name	192

Field separator	193
Record separator	194
Input options	194
First MFN to be assigned	194
Input Tag containing MFN	194
Load/Merge/Update	194
Reformatting parameters	195
Reformatting FST	195
Gizmo conversion file	196
Part 4: TOOLS	197
The Field Editor	199
Control keys always operative	199
Edit keys	199
Cut and paste keys	200
Control keys operating only during data entry	201
Control keys operating only during format editing	201
Control keys operating only for the arabic version	202
Scrolling fields	202
The Line Editor	203
The Worksheet Editor	207
Creating a new worksheet	207
Field Tag	208
Name position	208
Value position	209
Field attribute	209
Field length	210
Field type	210
Field pattern	211
Help message	211
Default value	212
Editing a worksheet	212
The Menu Editor	215
Creating a new menu	215
Name position	216
Value position	216
Field attribute	216
Field length	217
Type of entry	217
Action code	217
Internal option identifier	218
Option description	219
Editing a menu	220
Part 5: INSTALLATION DEPENDENT OPTIONS	221
Adapting CDS/ISIS to local requirements	223
Creating a new language version	223
Menu and system worksheet translation	223
Message translation	223

Customizing submenu options	224
Pseudo messages	225
Creating a stopword file	226
Creating an ANY file	226
Uppercase conversion table (ISISUC.TAB)	227
Alphabetic characters table (ISISAC.TAB)	228
Appendix A: Keyboards equivalence	229
Control keys	229
Determining the correct character	230
Appendix B: ISO 2709 interchange format	231
Leader segment	231
Record length (5 characters)	231
Record status (1 character)	232
Implementation codes (4 characters)	232
Indicator length (1 character)	232
Subfield identifier length (1 character)	232
Base address of data (5 characters)	232
For user systems (3 characters)	232
Length of "length of entry" field (1 character)	232
Length of "starting character" position (1 character)	232
For future use (2 characters)	233
Directory segment	233
Tag (3 characters)	233
Length of field	233
Location of field	233
Variable data fields segment	233
Format of ISO files produced and accepted by CDS/ISIS	234
Appendix C: List of English messages	235
Appendix D: Error messages	249
Recoverable error	249
Terminal errors	252
Appendix E: A Formal Description of the CDS/ISIS Formatting Language	255
Appendix F: CDS/ISIS Files	257
System files	257
CDS/ISIS Program	257
System menus and worksheets	257
System messages files	258

System tables	258
System print and work files	259
Data Base files	260
Mandatory data base files	260
Auxiliary files	260
User files	261
Appendix G: Master file structure and record format	263
Master file record format	263
Leader format	263
Directory format	263
Variable fields	263
Control record	264
Master file block format	264
Crossreference file	264
Master file updating technique	265
Creation of new records	265
Update of existing records	265
Deletion of records	266
Master file reorganization	266
Appendix H: Inverted file structure and record formats	267
Introduction	267
Format of .CNT file	267
Format of .N0x files	269
Format of .L0x files	269
Format of .IFP file	270
Appendix I: Listing of INSTALL.BAT file	273
Appendix J: Listing of INSTALL.COM file	275
Glossary	277
Index	281

