



APPENDIX

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Introduction

This appendix lists the database definition for the EMPLOYEE database, the definitions of the access and view descriptors used in this book, and the data in the EMPLOYEE database accessed by the view descriptors. It also lists the SAS data files used in the examples in Chapter 4, “Using SYSTEM 2000 Data in SAS Programs,” on page 23, Chapter 5, “Browsing and Updating SYSTEM 2000 Data,” on page 43, and Chapter 6, “Creating and Loading SYSTEM 2000 Databases,” on page 63.

If you want to run the examples, contact your SAS Software Representative for information on how to access the Sample Library files. Also, contact your DBA to be sure the data in the EMPLOYEE database are correct. (The EMPLOYEE database may need to be restored if previous users ran the examples in this book, which include deletes and inserts.)

SYSTEM 2000 Database Definition

This section shows the complete database definition for the EMPLOYEE database. The descriptor files created and used in this manual are based on this database.

Output A3.1 EMPLOYEE Database Definition

```

SYSTEM RELEASE NUMBER 11.6A
DATA BASE NAME IS      EMPLOYEE
DEFINITION NUMBER     2
DATA BASE CYCLE NUMBER 25
1* EMPLOYEE NUMBER (INTEGER NUMBER 9999)
2* LAST NAME (CHAR X(10) WITH FEW FUTURE OCCURRENCES )
3* FORENAME (NON-KEY CHAR X(20))
4* HIRE DATE (DATE)
5* BIRTHDAY (DATE)
6* SOCIAL SECURITY NUMBER (NON-KEY CHAR X(11))
7* SEX (CHAR X(6) WITH MANY FUTURE OCCURRENCES )
8* ETHNIC ORIGIN (CHAR X(9) WITH SOME FUTURE OCCURRENCES )
9* EMPLOYEE STATUS (CHAR X(9) WITH MANY FUTURE OCCURRENCES )
10* OFFICE-EXTENSION (NON-KEY CHAR X(9))
11* ACCRUED VACATION (NON-KEY DECIMAL NUMBER 999.99)
12* ACCRUED SICK LEAVE (NON-KEY DECIMAL NUMBER 999.99)
13* SECURITY CLEARANCE (INTEGER NUMBER 999 WITH MANY FUTURE OCCURRENCES )
14* STREET ADDRESS (NON-KEY CHAR X(20))
15* CITY-STATE (NON-KEY CHAR X(15))
16* ZIP CODE (CHAR X(5) WITH FEW FUTURE OCCURRENCES )
100* POSITION WITHIN COMPANY (RECORD)
101* POSITION TITLE (NON-KEY CHAR X(10) IN 100)
102* DEPARTMENT (CHAR X(14) IN 100 WITH SOME FUTURE OCCURRENCES )
103* MANAGER (CHAR XXX IN 100 WITH FEW FUTURE OCCURRENCES )
104* POSITION TYPE (CHAR X(12) IN 100 WITH SOME FUTURE OCCURRENCES )
105* START DATE (DATE IN 100)
106* END DATE (NON-KEY DATE IN 100)
110* SALARY WITHIN POSITION (RECORD IN 100)
111* PAY RATE (MONEY $9999.99 IN 110)
112* PAY SCHEDULE (CHAR X(7) IN 110)
113* EFFECTIVE DATE (DATE IN 110)
114* CURRENT DEDUCTION (NON-KEY MONEY $9999.99 IN 110)
120* MONTHLY PAYROLL ACCOUNTING (RECORD IN 110)
121* PAYROLL MONTH (DATE IN 120)
122* REGULAR HOURS (NON-KEY DECIMAL NUMBER 999.99 IN 120)
123* OVERTIME HOURS (NON-KEY DECIMAL NUMBER 999.99 IN 120)
124* GROSS PAY (NON-KEY MONEY $9999.99 IN 120)
125* FEDERAL TAX DEDUCTION (NON-KEY MONEY $9999.99 IN 120)
126* NET PAY (NON-KEY MONEY $9999.99 IN 120)
130* ADDITIONAL INFORMATION (RECORD IN 100)
131* LINE NUMBER (DECIMAL NUMBER 99.9 IN 130)
132* COMMENT TEXT (NON-KEY TEXT X(7) IN 130)
200* JOB SKILLS (RECORD)
201* SKILL TYPE (CHAR X(12) IN 200 WITH SOME FUTURE OCCURRENCES )
202* PROFICIENCY (NON-KEY CHAR X(5) IN 200)
203* YEARS OF EXPERIENCE (NON-KEY INTEGER NUMBER 99 IN 200)
300* PERSONAL INTERESTS (RECORD)
301* INTEREST (CHAR X(12) IN 300 WITH FEW FUTURE OCCURRENCES )
302* AFFILIATION (NON-KEY CHAR X(5) IN 300)
303* COMMENT (NON-KEY TEXT X(5) IN 300)
400* EDUCATIONAL BACKGROUND (RECORD)
410* EDUCATION (RECORD IN 400)
411* SCHOOL (CHAR X(15) IN 410)
412* DEGREE/CERTIFICATE (CHAR X(7) IN 410 WITH FEW FUTURE OCCUR^|
RENCES )
413* DATE COMPLETED (DATE IN 410)
414* MAJOR FIELD (NON-KEY CHAR X(16) IN 410)
415* MINOR FIELD (NON-KEY CHAR X(12) IN 410)
420* TRAINING (RECORD IN 400)
421* SOURCE (NON-KEY CHAR X(12) IN 420)
422* CLASS NAME (CHAR X(12) IN 420 WITH FEW FUTURE OCCURRENCES )
423* DATE ACCOMPLISHED (DATE IN 420)

```

Access Descriptors

MYLIB.EMPLOYEE Access Descriptor

This section describes the MYLIB.EMPLOYEE access descriptor for the EMPLOYEE database used in most of the examples in this manual. This section contains the statements used to create the MYLIB.EMPLOYEE access descriptor. You can create the MYLIB.EMPLOYEE access descriptor using the following statements in batch or interactive line mode:

```
proc access dbms=s2k;
  create mylib.employe.access;
  database=employee s2kpw=demo mode=multi;
  assign=yes;
  rename forename=firstnme office_e=phone
         yearsofe=yearsgender=sex
         degree_c=degree;
  length firstnme=13 lastname=13 c101=16;
  list all;
run;
```

Output A3.2 on page 146 contains the LIST output printed to the SAS log.

Output A3.2 Listing of MYLIB.EMPLOYEE Access Descriptor

```

SYSTEM 2000 Database: EMPLOYEE
Function: CREATE Descriptors- access: EMPLOYEE view:
Item  C-num  SAS Name  Len  Format      Informat    BY-key
1      C0      *RECORD*  *RECORD*  *RECORD*
2      C1      EMPLOYEE  4.0      4.0
3      C2      LASTNAME  13      $13.      $13.
4      C3      FIRSTNME  13      $13.      $13.
5      C4      HIREDATE  DATE7.   DATE7.
6      C5      BIRTHDAY  DATE7.   DATE7.
7      C6      SOCIALSE  $11.     $11.
8      C7      SEX       $6.      $6.
9      C8      ETHNICOR  $9.      $9.
10     C9      EMPLOYE0  $9.      $9.
11     C10     PHONE    $9.      $9.
12     C11     ACCRUEDV  6.2      6.2
13     C12     ACCRUEDS  6.2      6.2
14     C13     SECURITY  3.0      3.0
15     C14     STREETAD  $20.     $20.
16     C15     CITY_STA  $15.     $15.
17     C16     ZIPCODE   $5.      $5.
18     C100    *RECORD*  *RECORD*  *RECORD*
19     C101    POSITION   $10.     $10.
20     C102    DEPARTME $14.     $14.
21     C103    MANAGER   $3.      $3.
22     C104    POSITIO1 $12.     $12.
23     C105    STARTDAT DATE7.   DATE7.
24     C106    ENDDATE  DATE7.   DATE7.
25     C110    *RECORD*  *RECORD*  *RECORD*
26     C111    PAYRATE  7.2      7.2
27     C112    PAYSCHED $7.      $7.
28     C113    EFFECTIV DATE7.   DATE7.
29     C114    CURRENTD 7.2      7.2
30     C120    *RECORD*  *RECORD*  *RECORD*
31     C121    PAYROLLM DATE7.   DATE7.
32     C122    REGULARH 6.2      6.2
33     C123    OVERTIME 6.2      6.2
34     C124    GROSSPAY 7.2      7.2
35     C125    FEDERALT 7.2      7.2
36     C126    NETPAY   7.2      7.2
37     C130    *RECORD*  *RECORD*  *RECORD*
38     C131    LINENUMB 4.1      4.1
39     C132    COMMENTT $CHAR7.  $CHAR7.
40     C200    *RECORD*  *RECORD*  *RECORD*
41     C201    SKILLTYP $12.     $12.
42     C202    PROFICIE $5.      $5.
43     C203    YEARSOFE 2.0      2.0
44     C300    *RECORD*  *RECORD*  *RECORD*
45     C301    INTEREST $12.     $12.
46     C302    AFFILIAT $5.      $5.
47     C303    COMMENT  $CHAR5.  $CHAR5.
48     C400    *RECORD*  *RECORD*  *RECORD*
49     C410    *RECORD*  *RECORD*  *RECORD*
50     C411    SCHOOL   $15.     $15.
51     C412    DEGREE   $7.      $7.
52     C413    DATECOMP DATE7.   DATE7.
53     C414    MAJORFIE $16.     $16.
54     C415    MINORFIE $12.     $12.
55     C420    *RECORD*  *RECORD*  *RECORD*
56     C421    SOURCE   $12.     $12.
57     C422    CLASSNAM $12.     $12.
58     C423    DATEACCO DATE7.   DATE7.

```

View Descriptors

This section shows the SAS statements used to create the view descriptors for the EMPLOYEE database used in the examples in this manual. You can create all of the view descriptors used in the manual by using the following PROC ACCESS statements in batch and interactive mode.

All of the view descriptors are based on the MYLIB.EMPLOYEE access descriptor shown earlier in this appendix.

VLIB.EMPBD View Descriptor

The VLIB.EMPBD view descriptor was created as follows:

```
proc access dbms=s2k ad=mylib.employe;
  create vlib.empbd.view;
  select lastname firstnme birthday;
  subset "ob lastname,firstnme";
  s2kpw=demo mode=s;
  list view;
run;
```

The VLIB.EMPBD view descriptor accesses the data shown in Output A3.3 on page 147.

Output A3.3 Data Accessed by VLIB.EMPBD

Data Accessed by VLIB.EMPBD				1
OBS	LASTNAME	FIRSTNME	BIRTHDAY	
1	AMEER	DAVID	10OCT51	
2	BROOKS	RUBEN R.	25FEB52	
3	BROWN	VIRGINA P.	24MAY46	
4	CHAN	TAI	04JUL46	
5	GARRETT	OLAN M.	23JAN35	
6	GIBSON	GEORGE J.	23APR46	
7	GOODSON	ALAN F.	21JUN50	
8	JUAREZ	ARMANDO	28MAY47	
9	LITTLEJOHN	FANNIE	17MAY54	
10	RICHARDSON	TRAVIS Z.	30NOV37	
11	RODRIGUEZ	ROMUALDO R	09FEB29	
12	SCHOLL	MADISON A.	19MAR45	
13	SHROPSHIRE	LELAND G.	04SEP49	
14	SMITH	JERRY LEE	13SEP42	
15	VAN HOTTEN	GWENDOLYN	13SEP42	
16	WAGGONNER	MERRILEE D	27APR36	
17	WILLIAMSON	JANICE L.	19MAY52	

VLIB.EMPEDUC View Descriptor

The VLIB.EMPEDUC view descriptor was created as follows:

```

proc access dbms=s2k ad=mylib.employe;
  create vlib.empeduc.view;
  select lastname firstnme sex degree;
  subset "ob lastname,firstnme";
  s2kpw=demo mode=s;
  list view;
run;

```

The VLIB.EMPEDUC view descriptor accesses the data shown in Output A3.4 on page 148.

Output A3.4 Data Accessed by VLIB.EMPEDUC

Data Accessed by VLIB.EMPEDUC					1
OBS	LASTNAME	FIRSTNME	SEX	DEGREE	
1					
2	AMEER	DAVID	MALE	BS	
3	BOWMAN	HUGH E.	MALE	MS	
4	BOWMAN	HUGH E.	MALE	PHD	
5	BOWMAN	HUGH E.	MALE	BS	
6	BROOKS	RUBEN R.	MALE	BS	
7	BROWN	VIRGINA P.	FEMALE	BA	
8	CAHILL	JACOB	MALE	BS	
9	CAHILL	JACOB	MALE	BS	
10	CANADY	FRANK A.	MALE	MA	
11	CANADY	FRANK A.	MALE	BS	
12	CHAN	TAI	MALE	PHD	
13	CHAN	TAI	MALE	BA	
14	COLLINS	LILLIAN	FEMALE	HIGH SC	
15	FAULKNER	CARRIE ANN	FEMALE		
16	FERNANDEZ	SOPHIA	FEMALE	BS	
17	FERNANDEZ	SOPHIA	FEMALE	MS	
18	FREEMAN	LEOPOLD	MALE	BS	
19	FREEMAN	LEOPOLD	MALE	BS	
20	GARCIA	FRANCISCO	MALE	MBA	
21	GARCIA	FRANCISCO	MALE	BS	
22	GARRETT	OLAN M.	MALE	MS	
23	GARRETT	OLAN M.	MALE	BS	
24	GIBSON	MOLLY I.	FEMALE	BA	
25	GIBSON	GEORGE J.	MALE	BA	
26	GIBSON	GEORGE J.	MALE	MS	
27	GIBSON	GEORGE J.	MALE	MS	
28	GOODSON	ALAN F.	MALE	BA	
29	HERNANDEZ	JESSE L.	MALE	PHD	
30	HERNANDEZ	JESSE L.	MALE	MA	
31	HERNANDEZ	JESSE L.	MALE	BS	
32	HERNANDEZ	JESSE L.	MALE	BA	
33	JOHNSON	BRADFORD	MALE		
34	JONES	MICHAEL Y.	MALE	BS	
35	JONES	MICHAEL Y.	MALE		
36	JONES	RITA M.	FEMALE		
37	JUAREZ	ARMANDO	MALE	MS	
38	JUAREZ	ARMANDO	MALE	BS	
39	KAATZ	FREDDIE	MALE	HIGH SC	
40	KNAPP	PATRICE R.	FEMALE	BA	

41	KNIGHT	ALTHEA	FEMALE	
42	LITTLEJOHN	FANNIE	FEMALE	HIGH SC
43	MILLSAP	JOEL B.	MALE	PHD
44	MUELLER	PATSY	FEMALE	HIGH SC
45	NATHANIEL	DARRYL	MALE	AA
46	POLANSKI	IVAN L.	MALE	BS
47	POLANSKI	IVAN L.	MALE	BS
48	POLANSKI	IVAN L.	MALE	MS
49	QUINTERO	PEDRO	MALE	BS
50	QUINTERO	PEDRO	MALE	
51	REDFOX	RICHARD B.	MALE	BS
52	REED	KENNETH D.	MALE	
53	REID	DAVID G.	MALE	BS
54	RICHARDSON	TRAVIS Z.	MALE	BS
55	RODRIGUEZ	ROMUALDO R	MALE	BS
56	SALAZAR	YOLANDA	FEMALE	AA
57	SAVAGE	WILLIAM D.	MALE	
58	SCHMIDT	PENNY	FEMALE	HIGH SC
59	SCHOLL	MADISON A.	MALE	MS
60	SCHOLL	MADISON A.	MALE	BS
61	SEATON	GARY	MALE	
62	SHROPSHIRE	LELAND G.	MALE	BA
63	SLYE	LEONARD R.	MALE	HIGH SC
64	SMITH	JERRY LEE	MALE	MA
65	SMITH	JERRY LEE	MALE	BA
66	SMITH	GARLAND P.	MALE	AA
67	SMITH	JANET F.	FEMALE	BA
68	THROCKMORT	STEWART Q.	MALE	BS
69	THROCKMORT	STEWART Q.	MALE	MS
70	VAN HOTTEN	GWENDOLYN	FEMALE	BA
71	WAGGONNER	MERRILEE D	FEMALE	AA
72	WATERHOUSE	CLIFTON P.	MALE	
73	WATERHOUSE	CLIFTON P.	MALE	
74	WILLIAMSON	JANICE L.	FEMALE	BA
75	WILLIAMSON	JANICE L.	FEMALE	AA

VLIB.EMPPHON View Descriptor

The VLIB.EMPPHON view descriptor was created as follows:

```
proc access dbms=s2k ad=mylib.employe;
  create vlib.empphon.view;
  select lastname firstnme phone;
  subset "ob lastname,firstnme";
  s2kpw=demo mode=s;
  list view;
run;
```

The VLIB.EMPPHON view descriptor accesses the data shown in Output A3.5 on page 150.

Output A3.5 Data Accessed by VLIB.EMPPHON

Data Accessed by VLIB.EMPPHON				1
OBS	LASTNAME	FIRSTNME	PHONE	
1	AMEER	DAVID	545 XT495	
2	BROOKS	RUBEN R.	581 XT347	
3	BROWN	VIRGINA P.	218 XT258	
4	CHAN	TAI	292 XT331	
5	GARRETT	OLAN M.	212 XT208	
6	GIBSON	GEORGE J.	327 XT703	
7	GOODSON	ALAN F.	323 XT512	
8	JUAREZ	ARMANDO	506 XT987	
9	LITTLEJOHN	FANNIE	219 XT653	
10	RICHARDSON	TRAVIS Z.	243 XT325	
11	RODRIGUEZ	ROMUALDO R	243 XT874	
12	SCHOLL	MADISON A.	318 XT419	
13	SHROPSHIRE	LELAND G.	327 XT616	
14	SMITH	JERRY LEE	327 XT169	
15	VAN HOTTEN	GWENDOLYN	212 XT311	
16	WAGGONNER	MERRILEE D	244 XT914	
17	WILLIAMSON	JANICE L.	218 XT802	

VLIB.EMPPPOS View Descriptor

The VLIB.EMPPPOS view descriptor was created as follows:

```
proc access dbms=s2k ad=mylib.employe;
create vlib.emppos.view;
  select lastname firstnme position departme
  manager;
  subset "order by lastname";
  list all;
run;
```

The VLIB.EMPPPOS view descriptor accesses the data shown in Output A3.6 on page 151.

Output A3.6 Data Accessed by VLIB.EMPOS

Data Accessed by VLIB.EMPOS						1
OBS	LASTNAME	FIRSTNME	POSITION	DEPARTME	MANAGER	
1			PROGRAMMER	INFORMATION SY	MYJ	
2	AMEER	DAVID	SR SALES REPRESE	MARKETING	VPB	
3	AMEER	DAVID	JR SALES REPRESE	MARKETING	VPB	
4	BOWMAN	HUGH E.	EXECUTIVE VICE-P	CORPORATION	CPW	
5	BROOKS	RUBEN R.	JR SALES REPRESE	MARKETING	MAS	
6	BROWN	VIRGINA P.	MANAGER WESTERN	MARKETING	OMG	
7	CAHILL	JACOB	MANAGER SYSTEMS	INFORMATION SY	JBM	
8	CANADY	FRANK A.	MANAGER PERSONNE	ADMINISTRATION	PRK	
9	CHAN	TAI	SR SALES REPRESE	MARKETING	TZR	
10	COLLINS	LILLIAN	MAIL CLERK	ADMINISTRATION	SQT	
11	FAULKNER	CARRIE ANN	SECRETARY	CORPORATION	JBM	
12	FERNANDEZ	SOPHIA	STANDARDS & PROC	INFORMATION SY	JLH	
13	FREEMAN	LEOPOLD	SR SYSTEMS PROGR	INFORMATION SY	JLH	
14	GARCIA	FRANCISCO	JR PROGRAMMER/AN	INFORMATION SY	MYJ	
15	GARRETT	OLAN M.	SR SALES REPRESE	MARKETING	VPB	
16	GARRETT	OLAN M.	MANAGER OF SALES	MARKETING	HEB	
17	GARRETT	OLAN M.	VICE-PRESIDENT M	CORPORATION	HEB	
18	GIBSON	MOLLY I.	TECHNICAL WRITER	INFORMATION SY	JC	
19	GIBSON	GEORGE J.	INSTRUCTOR	MARKETING	GVH	
20	GOODSON	ALAN F.	SR SALES REPRESE	MARKETING	TZR	
21	HERNANDEZ	JESSE L.	MANAGER DATA BAS	INFORMATION SY	JBM	
22	JOHNSON	BRADFORD	JR SYSTEMS PROGR	INFORMATION SY	JFS	
23	JONES	RITA M.	MANAGER ACCOUNTI	ADMINISTRATION	PRK	
24	JONES	MICHAEL Y.	SR SYSTEMS ANALY	INFORMATION SY	JC	
25	JUAREZ	ARMANDO	SR SALES REPRESE	MARKETING	VPB	
26	JUAREZ	ARMANDO	JR SALES REPRESE	MARKETING	VPB	
27	KAATZ	FREDDIE	SUPPLY CLERK	ADMINISTRATION	SQT	
28	KNAPP	PATRICE R.	VICE-PRESIDENT A	CORPORATION	HEB	
29	KNIGHT	ALTHEA	SECRETARY	CORPORATION	OMG	
30	LITTLEJOHN	FANNIE	SECRETARY	MARKETING	VPB	
31	MILLSAP	JOEL B.	VICE-PRESIDENT I	CORPORATION	HEB	
32	MUELLER	PATSY	SECRETARY	CORPORATION	PRK	
33	NATHANIEL	DARRYL	SECRETARY	CORPORATION	HEB	
34	POLANSKI	IVAN L.	MANAGER SYSTEMS	INFORMATION SY	JBM	
35	QUINTERO	PEDRO	OPERATIONS SUPER	INFORMATION SY	ILP	
36	REDFOX	RICHARD B.	SYSTEMS ANALYST	INFORMATION SY	JC	
37	REED	KENNETH D.	COMPUTER LIBRARI	INFORMATION SY	PQ	
38	REID	DAVID G.	PROGRAMMER	INFORMATION SY	MYJ	
39	REID	DAVID G.	ASSISTANT PROGRA	INFORMATION SY	MYJ	
40	RICHARDSON	TRAVIS Z.	MANAGER EASTERN	MARKETING	OMG	
41	RODRIGUEZ	ROMUALDO R.	PR & ADVERTISING	MARKETING	GVH	
42	SALAZAR	YOLANDA	ADMINISTRATIVE A	CORPORATION	CPW	
43	SALAZAR	YOLANDA	SECRETARY	CORPORATION	CPW	
44	SAVAGE	WILLIAM D.	COMPUTER OPERATO	INFORMATION SY	PQ	
45	SCHMIDT	PENNY	SECRETARY	ADMINISTRATION	FAC	
46	SCHOLL	MADISON A.	JR SALES REPRESE	MARKETING	VPB	
47	SCHOLL	MADISON A.	SR SALES REPRESE	MARKETING	VPB	
48	SEATON	GARY	COMPUTER OPERATO	INFORMATION SY	PQ	
49	SHROPSHIRE	LELAND G.	JR SALES REPRESE	MARKETING	TZR	
50	SLYE	LEONARD R.	GENERAL MAINTENA	ADMINISTRATION	SQT	
51	SMITH	JANET F.	SR SYSTEMS PROGR	INFORMATION SY	ILP	
52	SMITH	JERRY LEE	JR SALES REPRESE	MARKETING	AFG	
53	SMITH	GARLAND P.	BOOKKEEPER	ADMINISTRATION	RMJ	
54	THROCKMORT	STEWART Q.	OFFICE SUPERVISO	ADMINISTRATION	FAC	
55	VAN HOTTEN	GWENDOLYN	MANAGER PUBLIC R	MARKETING	OMG	
56	WAGGONNER	MERRILEE D.	SECRETARY	MARKETING	TZR	
57	WATERHOUSE	CLIFTON P.	PRESIDENT	CORPORATION		
58	WILLIAMSON	JANICE L.	INSTRUCTOR	MARKETING	GVH	

VLIB.EMPSKIL View Descriptor

The VLIB.EMPSKIL view descriptor was created as follows:

```
proc access dbms=s2k ad=mylib.employe;
  create vlib.empskil.view;
  select c2 c3 c201 c203;
  subset "ob skilltyp";
  s2kpw=demo mode=multi;
  list view;

run;
```

The VLIB.EMPSKIL view descriptor accesses the data shown in Output A3.7 on page 152.

Output A3.7 Data Accessed by VLIB.EMPSKIL

Data Accessed by VLIB.EMPSKIL					1
OBS	LASTNAME	FIRSTNME	SKILLTYP	YEARS	
1				.	
2	AMEER	DAVID	PASCAL	3	
3	BOWMAN	HUGH E.	DP SYSTEMS A	11	
4	BOWMAN	HUGH E.	RUSSIAN	15	
5	BOWMAN	HUGH E.	TEACHING	7	
6	BOWMAN	HUGH E.	PUBLIC RELAT	13	
7	BROOKS	RUBEN R.	PASCAL	4	
8	BROOKS	RUBEN R.	PUBLIC RELAT	1	
9	BROWN	VIRGINA P.	SYSTEMS PROG	2	
10	BROWN	VIRGINA P.	PUBLIC RELAT	8	
11	BROWN	VIRGINA P.	ASSEMBLER	3	
12	BROWN	VIRGINA P.	FRENCH	11	
13	CAHILL	JACOB	TECHNICAL WR	10	
14	CAHILL	JACOB	ASSEMBLER	11	
15	CAHILL	JACOB	COBOL	11	
16	CAHILL	JACOB	SYSTEMS PROG	16	
17	CANADY	FRANK A.	ACCOUNTING	15	
18	CANADY	FRANK A.	COBOL	4	
19	CANADY	FRANK A.	TYPING	20	
20	CHAN	TAI	SYSTEMS PROG	6	
21	CHAN	TAI	CHINESE	8	
22	COLLINS	LILLIAN	TYPING	2	
23	COLLINS	LILLIAN	SHORTHAND	1	
24	FAULKNER	CARRIE ANN	GRAPHICS	1	
25	FAULKNER	CARRIE ANN	SHORTHAND	5	
26	FAULKNER	CARRIE ANN	TYPING	6	
27	FERNANDEZ	SOPHIA	SYSTEMS PROG	6	
28	FERNANDEZ	SOPHIA	DATA BASE AD	3	
29	FERNANDEZ	SOPHIA	SYSTEMS ANAL	12	
30	FERNANDEZ	SOPHIA	PL/1	2	
31	FERNANDEZ	SOPHIA	PASCAL	1	
32	FERNANDEZ	SOPHIA	COBOL	4	
33	FERNANDEZ	SOPHIA	FORTRAN	5	
34	FERNANDEZ	SOPHIA	ASSEMBLER	8	
35	FREEMAN	LEOPOLD	COBOL	20	

36	FREEMAN	LEOPOLD	JAPANESE	3
37	FREEMAN	LEOPOLD	SYSTEMS PROG	20
38	FREEMAN	LEOPOLD	DATA BASE AD	6
39	FREEMAN	LEOPOLD	ASSEMBLER	20
40	GARCIA	FRANCISCO	COBOL	3
41	GARCIA	FRANCISCO	PASCAL	3
42	GARCIA	FRANCISCO	FORTRAN	3
43	GARRETT	OLAN M.	PUBLIC SPEAK	20
44	GARRETT	OLAN M.	PUBLIC RELAT	8
45	GARRETT	OLAN M.	WRITING	13
46	GARRETT	OLAN M.	FINANCIAL AU	7
47	GIBSON	MOLLY I.	GRAPHICS	3
48	GIBSON	MOLLY I.	CARTOON ART	1
49	GIBSON	GEORGE J.	PUBLIC SPEAK	15
50	GIBSON	GEORGE J.	TEACHING	10
51	GIBSON	GEORGE J.	SYSTEMS ANAL	8
52	GOODSON	ALAN F.	PASCAL	1
53	HERNANDEZ	JESSE L.	ASSEMBLER	24
54	HERNANDEZ	JESSE L.	SYSTEMS PROG	25
55	HERNANDEZ	JESSE L.	SYSTEMS ANAL	17
56	HERNANDEZ	JESSE L.	DATA BASE AD	10
57	HERNANDEZ	JESSE L.	FORTRAN	19
58	HERNANDEZ	JESSE L.	SPANISH	46
59	JOHNSON	BRADFORD	SYSTEMS PROG	3
60	JONES	MICHAEL Y.	PL/1	10
61	JONES	MICHAEL Y.	ASSEMBLER	17
62	JONES	MICHAEL Y.	COBOL	21
63	JONES	MICHAEL Y.	SYSTEMS PROG	11
64	JONES	MICHAEL Y.	PASCAL	3
65	JONES	MICHAEL Y.	GERMAN	7
66	JONES	MICHAEL Y.	TECHNICAL WR	4
67	JONES	RITA M.	.	.
68	JUAREZ	ARMANDO	ASSEMBLER	7
69	KAATZ	FREDDIE	.	.
70	KNAPP	PATRICE R.	CPA	14
71	KNAPP	PATRICE R.	WRITING	3
72	KNIGHT	ALTHEA	GERMAN	3
73	KNIGHT	ALTHEA	ACCOUNTING	2
74	KNIGHT	ALTHEA	SHORTHAND	8
75	KNIGHT	ALTHEA	TYPING	8
76	KNIGHT	ALTHEA	ETS OPERATOR	1
77	LITTLEJOHN	FANNIE	SHORTHAND	4
78	LITTLEJOHN	FANNIE	GRAPHICS	3
79	LITTLEJOHN	FANNIE	TYPING	4
80	MILLSAP	JOEL B.	SYSTEMS ANAL	17
81	MILLSAP	JOEL B.	HEBREW	4
82	MILLSAP	JOEL B.	SYSTEMS PROG	15
83	MILLSAP	JOEL B.	FORTRAN	13
84	MILLSAP	JOEL B.	ASSEMBLER	14
85	MUELLER	PATSY	TYPING	6
86	MUELLER	PATSY	SHORTHAND	5
87	MUELLER	PATSY	ACCOUNTING	5
88	NATHANIEL	DARRYL	ACCOUNTING	9
89	NATHANIEL	DARRYL	TYPING	9
90	NATHANIEL	DARRYL	SHORTHAND	7

91	NATHANIEL	DARRYL	PUBLIC RELAT	3
92	POLANSKI	IVAN L.	RUSSIAN	3
93	POLANSKI	IVAN L.	ASSEMBLER	7
94	POLANSKI	IVAN L.	OPERATIONS R	10
95	POLANSKI	IVAN L.	SYSTEMS PROG	10
96	QUINTERO	PEDRO	OPERATIONS R	4
97	QUINTERO	PEDRO	SYSTEMS PROG	5
98	QUINTERO	PEDRO	ASSEMBLER	3
99	REDFOX	RICHARD B.	SYSTEMS PROG	10
100	REDFOX	RICHARD B.	ASSEMBLER	15
101	REDFOX	RICHARD B.	SYSTEMS ANAL	12
102	REDFOX	RICHARD B.	FORTRAN	9
103	REED	KENNETH D.	LIBRARY SCIE	1
104	REID	DAVID G.	FORTRAN	1
105	REID	DAVID G.	PL/1	5
106	REID	DAVID G.	COBOL	1
107	RICHARDSON	TRAVIS Z.	JAPANESE	7
108	RODRIGUEZ	ROMUALDO R	GRAPHICS	20
109	RODRIGUEZ	ROMUALDO R	VISUAL DESIG	22
110	SALAZAR	YOLANDA	SHORTHAND	10
111	SALAZAR	YOLANDA	ACCOUNTING	4
112	SALAZAR	YOLANDA	TYPING	13
113	SAVAGE	WILLIAM D.	COBOL	4
114	SCHMIDT	PENNY	SHORTHAND	12
115	SCHMIDT	PENNY	TYPING	23
116	SCHMIDT	PENNY	ETS OPERATOR	3
117	SCHOLL	MADISON A.	SYSTEMS ANAL	9
118	SCHOLL	MADISON A.	FORTRAN	7
119	SEATON	GARY	.	.
120	SHROPSHIRE	LELAND G.	PUBLIC SPEAK	6
121	SLYE	LEONARD R.	PRINT SHOP	0
122	SMITH	JERRY LEE	SYSTEMS DESI	3
123	SMITH	JANET F.	SYSTEMS PROG	8
124	SMITH	JANET F.	ASSEMBLER	7
125	SMITH	JANET F.	COBOL	4
126	SMITH	GARLAND P.	.	.
127	THROCKMORT	STEWART Q.	.	.
128	VAN HOTTEN	GWENDOLYN	TYPING	12
129	VAN HOTTEN	GWENDOLYN	GRAPHICS	8
130	VAN HOTTEN	GWENDOLYN	TECHNICAL WR	4
131	VAN HOTTEN	GWENDOLYN	SHORTHAND	1
132	VAN HOTTEN	GWENDOLYN	PUBLIC SPEAK	9
133	WAGGONNER	MERRILEE D	TYPING	19
134	WAGGONNER	MERRILEE D	SHORTHAND	15
135	WATERHOUSE	CLIFTON P.	COBOL	10
136	WATERHOUSE	CLIFTON P.	FRENCH	21
137	WATERHOUSE	CLIFTON P.	PUBLIC RELAT	19
138	WATERHOUSE	CLIFTON P.	SYSTEMS ANAL	21
139	WATERHOUSE	CLIFTON P.	PUBLIC SPEAK	12
140	WATERHOUSE	CLIFTON P.	ACCOUNTING	12
141	WATERHOUSE	CLIFTON P.	ASSEMBLER	4
142	WILLIAMSON	JANICE L.	COBOL	2
143	WILLIAMSON	JANICE L.	ASSEMBLER	1
144	WILLIAMSON	JANICE L.	COBOL	4
145	WILLIAMSON	JANICE L.	TECHNICAL WR	2
146	WILLIAMSON	JANICE L.	TEACHING	1

VLIB.EMPVAC View Descriptor

The VLIB.EMPVAC view descriptor was created as follows:

```
proc access dbms=s2k ad=mylib.employe;  
  create vlib.empvac.view;  
    select lastname firstnme accruedv departme;  
    subset "ob lastname,firstnme";  
    s2kpw=demo mode=s;  
    list view;  
run;
```

The VLIB.EMPVAC view descriptor accesses the data shown in Output A3.8 on page 156.

Output A3.8 Data Accessed by VLIB.EMPVAC

Data Accessed by VLIB.EMPVAC					1
OBS	LASTNAME	FIRSTNME	ACCRUEDV	DEPARTME	
1				INFORMATION SY	
2	AMEER	DAVID	56.00	MARKETING	
3	AMEER	DAVID	56.00	MARKETING	
4	BOWMAN	HUGH E.	40.00	CORPORATION	
5	BROOKS	RUBEN R.	80.00	MARKETING	
6	BROWN	VIRGINA P.	48.00	MARKETING	
7	CAHILL	JACOB	60.00	INFORMATION SY	
8	CANADY	FRANK A.	8.00	ADMINISTRATION	
9	CHAN	TAI	40.00	MARKETING	
10	COLLINS	LILLIAN	80.00	ADMINISTRATION	
11	FAULKNER	CARRIE ANN	48.00	CORPORATION	
12	FERNANDEZ	SOPHIA	96.00	INFORMATION SY	
13	FREEMAN	LEOPOLD	.	INFORMATION SY	
14	GARCIA	FRANCISCO	80.00	INFORMATION SY	
15	GARRETT	OLAN M.	80.00	MARKETING	
16	GARRETT	OLAN M.	80.00	CORPORATION	
17	GARRETT	OLAN M.	80.00	MARKETING	
18	GIBSON	GEORGE J.	80.00	MARKETING	
19	GIBSON	MOLLY I.	40.00	INFORMATION SY	
20	GOODSON	ALAN F.	48.00	MARKETING	
21	HERNANDEZ	JESSE L.	56.00	INFORMATION SY	
22	JOHNSON	BRADFORD	40.00	INFORMATION SY	
23	JONES	RITA M.	24.00	ADMINISTRATION	
24	JONES	MICHAEL Y.	80.00	INFORMATION SY	
25	JUAREZ	ARMANDO	48.00	MARKETING	
26	JUAREZ	ARMANDO	48.00	MARKETING	
27	KAATZ	FREDDIE	80.00	ADMINISTRATION	
28	KNAPP	PATRICE R.	8.00	CORPORATION	
29	KNIGHT	ALTHEA	0.00	CORPORATION	
30	LITTLEJOHN	FANNIE	8.00	MARKETING	
31	MILLSAP	JOEL B.	24.00	CORPORATION	
32	MUELLER	PATSY	40.00	CORPORATION	
33	NATHANIEL	DARRYL	40.00	CORPORATION	
34	POLANSKI	IVAN L.	56.00	INFORMATION SY	
35	QUINTERO	PEDRO	32.00	INFORMATION SY	
36	REDFOX	RICHARD B.	48.00	INFORMATION SY	
37	REED	KENNETH D.	64.00	INFORMATION SY	
38	REID	DAVID G.	80.00	INFORMATION SY	
39	REID	DAVID G.	80.00	INFORMATION SY	
40	RICHARDSON	TRAVIS Z.	88.00	MARKETING	
41	RODRIGUEZ	ROMUALDO R	32.00	MARKETING	
42	SALAZAR	YOLANDA	80.00	CORPORATION	
43	SALAZAR	YOLANDA	80.00	CORPORATION	
44	SAVAGE	WILLIAM D.	80.00	INFORMATION SY	
45	SCHMIDT	PENNY	80.00	ADMINISTRATION	
46	SCHOLL	MADISON A.	40.00	MARKETING	
47	SCHOLL	MADISON A.	40.00	MARKETING	
48	SEATON	GARY	80.00	INFORMATION SY	
49	SHROPSHIRE	LELAND G.	32.00	MARKETING	
50	SLYE	LEONARD R.	0.00	ADMINISTRATION	
51	SMITH	JANET F.	16.00	INFORMATION SY	
52	SMITH	JERRY LEE	0.00	MARKETING	
53	SMITH	GARLAND P.	8.00	ADMINISTRATION	
54	THROCKMORT	STEWART Q.	64.00	ADMINISTRATION	
55	VAN HOTTEN	GWENDOLYN	0.00	MARKETING	
56	WAGGONNER	MERRILEE D	56.00	MARKETING	
57	WATERHOUSE	CLIFTON P.	8.00	CORPORATION	
58	WILLIAMSON	JANICE L.	40.00	MARKETING	

SAS Data Files

This section describes the SAS data files used in Chapter 4, “Using SYSTEM 2000 Data in SAS Programs,” on page 23, Chapter 5, “Browsing and Updating SYSTEM 2000 Data,” on page 43, and Chapter 6, “Creating and Loading SYSTEM 2000 Databases,” on page 63. Each data file description provides the SAS statements that created the data file and shows the output from the PRINT procedure.

MYDATA.CLASSES Data File

The SAS data file MYDATA.CLASSES is used in Chapter 4, “Using SYSTEM 2000 Data in SAS Programs,” on page 23. It was created with the following SAS statements:

```
libname mydata 'your-SAS-library';
data mydata.classes;
  input lastname $ 1-10 firstnme $ 15-25
        class $ 30-50;
cards;
AMMER          DAVID          PRESENTING IDEAS
CANADY         FRANK A.        PRESENTING IDEAS
GIBSON         MOLLY I.        SUPERVISOR SKILLS
GIBSON         MOLLY I.        STRESS MGMT
RICHARDSON     TRAVIS Z.      SUPERVISOR SKILLS
;
run;
```

The following PRINT procedure lists the output, shown in Output A3.9 on page 157.

```
proc print data=mydata.classes;
  title2 'SAS Data File MYDATA.CLASSES';
run;
```

Output A3.9 SAS Data File MYDATA.CLASSES

SAS Data File MYDATA.CLASSES				1
OBS	LASTNAME	FIRSTNME	CLASS	
1	AMEER	DAVID	PRESENTING IDEAS	
2	CANADY	FRANK A.	PRESENTING IDEAS	
3	GIBSON	MOLLY I.	SUPERVISOR SKILLS	
4	GIBSON	MOLLY I.	STRESS MGMT	
5	RICHARDSON	TRAVIS Z.	SUPERVISOR SKILLS	

V6.BIRTHDY Data File

The SAS data file V6.BIRTHDY is used in “Updating a SAS Data File with SYSTEM 2000 Data” on page 36. It was created with the following SAS statements:

```

libname v6 'your-SAS-library';
data v6.birthdy;
  input lastname $10. firstnme $10. birthday date7.;
  format birthday date7.;
  cards;
JONES      FRANK      22MAY53
MCVADE     CURTIS     25DEC54
SMITH      VIRGINIA   14NOV49
TURNER     BECKY     26APR50
;
run;

```

The following PRINT procedure lists the output, shown in Output A3.10 on page 158.

```

proc print data=v6.birthdy;
  title2 'SAS Data File V6.BIRTHDY';
  format birthday date7.;
run;

```

Output A3.10 SAS Data File V6.BIRTHDY

SAS Data File V6.BIRTHDY				1
OBS	LASTNAME	FIRSTNME	BIRTHDAY	
1	JONES	FRANK	22MAY53	
2	MCVADE	CURTIS	25DEC54	
3	SMITH	VIRGINA	14NOV49	
4	TURNER	BECKY	26APR50	

V7.CONSULTING_BIRTHDAYS Data File

The SAS data file V7.CONSULTING_BIRTHDAYS is also used in “Updating a SAS Data File with SYSTEM 2000 Data” on page 36. It was created with the following SAS statements:

```

data v7.consulting_birthdays;
  input last_name $ 1-13 first_name $ 14-26
  birthdate DATE7.;
  informat birthdate DATE7.;
  format birthdate DATE7.;
  datalines;
JOHNSON      ED      30JAN65
LEWIS        THOMAS  25MAY54
SMITH        AMANDA  02DEC60
WILSON       REBECCA 13APR58
;
run;

```

The following PRINT procedure lists the output, shown in Output A3.11 on page 159.


```
proc print data=v7.consulting_birthdays;
  title2 'V7.Consulting_Birthdays Data File';
run;
```

Output A3.11 SAS Data File V.Consulting_Birthdays

V7.Consulting_Birthdays Data File				1
obs	last_name	first_name	birthdate	
1	JOHNSON	ED	30JAN65	
2	LEWIS	THOMAS	25MAY54	
3	SMITH	AMANDA	02DEC60	
4	WILSON	REBECCA	13APR58	

MYDATA.CORPHON Data File

The SAS data file MYDATA.CORPHON is used in Chapter 5, “Browsing and Updating SYSTEM 2000 Data,” on page 43. It was created with the following SAS statements:

```
libname mydata 'your-SAS-library';
data mydata.corphon;
  input lastname $15. firstnme $15. phone $10.;
  cards;
BOWMAN          HUGH E.          109 XT901
FAULKNER        CARRIE ANN       132 XT417
GARRETT         OLAN M.          212 XT208
KNAPP           PATRICE R.       222 XT 12
KNIGHT          ALTHEA           213 XT218
MILLSAP         JOEL B.          131 XT224
MUELLER         PATSY            223 XT822
NATHANIEL       DARRYL           118 XT544
SALAZAR         YOLANDA          111 XT169
WATERHOUSE     CLIFTON P.       101 XT109
;
run;
```

The following PRINT procedure lists the output:

```
proc print data=mydata.corphon;
  title 'SAS Data File MYDATA.CORPHON';
run;
```

Output A3.12 SAS Data File MYDATA.CORPHON

SAS Data File MYDATA.CORPHON				1
OBS	LASTNAME	FIRSTNME	PHONE	
1	BOWMAN	HUGH E.	109 XT901	
2	FAULKNER	CARRIE ANN	132 XT417	
3	GARRETT	OLAN M.	212 XT208	
4	KNAPP	PATRICE R.	222 XT 12	
5	KNIGHT	ALTHEA	213 XT218	
6	MILLSAP	JOEL B.	131 XT224	
7	MUELLER	PATSY	223 XT822	
8	NATHANIEL	DARRYL	118 XT544	
9	SALAZAR	YOLANDA	111 XT169	
10	WATERHOUSE	CLIFTON P.	101 XT109	

TRANS.BANKING Data File

The SAS data file TRANS.BANKING is used in Chapter 6, “Creating and Loading SYSTEM 2000 Databases,” on page 63 as input to the DBLOAD procedure to create and load data into the SYSTEM 2000 database BANKING. It was created with the following SAS statements:

```
libname trans 'your.SAS.library';
data trans.banking;
  input custname & $20.
        custid & $7.
        acctnum & 4.
        accttyp & $1.
        transtyp & $1.
        transamt & dollar10.2
        transdat & date7.;
  format acctnum 4.
         transamt dollar10.2
         transdat date7.;
  informat transdat date.;
  cards;
booker, john 74-9838 8349 s d $40.00 05jun89
lopez, pat 38-7274 9896 s d $15.67 23jun89
.
.   more data lines
.
run;
```

If you were to invoke the PRINT procedure for the BANKING data file, the SAS System would list the output shown here:

```
proc print data=trans.banking;
  title 'Data in SAS Data File TRANS.BANKING';
run;
```

Output A3.13 SAS Data File TRANS.BANKING

Data in SAS Data File TRANS.BANKING							1
OBS	CUSTNAME	CUSTID	ACCTNUM	ACCTTYP	TRANSTYP	TRANSAMT	TRANSDAT
1	BOOKER, JOHN	74-9838	8349	S	D	\$40.00	05JUN89
2	LOPEZ, PAT	38-7274	9896	S	D	\$15.67	23JUN89
3	JONES, APRIL	85-4941	4141	C	W	\$213.78	29JUN89
4	BOOKER, JOHN	74-9838	8349	S	I	\$34.76	30JUN89
5	MILLER, NANCY	07-6163	7890	S	I	\$53.98	30JUN89
6	LOPEZ, PAT	38-7274	9896	S	I	\$16.43	30JUN89
7	JONES, APRIL	85-4941	4141	C	W	\$354.70	30JUN89
8	MILLER, NANCY	07-6163	7890	S	D	\$1,245.87	01JUL89
9	JONES, APRIL	85-4941	4141	C	D	\$2,298.65	01JUL89
10	MILLER, NANCY	07-6163	3876	C	W	\$45.98	08JUL89
11	ROGERS, MIKE	96-5052	4576	C	D	\$75.00	10JUL89
12	BOOKER, JOHN	74-9838	3673	C	D	\$150.00	10JUL89
13	LOPEZ, PAT	38-7274	9896	S	D	\$50.00	10JUL89
14	BOOKER, JOHN	74-9838	3673	C	W	\$65.43	13JUL89
15	ROGERS, MIKE	96-5052	4576	C	W	\$12.34	13JUL89
16	ROGERS, MIKE	96-5052	4576	C	W	\$45.67	13JUL89
17	MILLER, NANCY	07-6163	3876	C	D	\$56.79	14JUL89
18	ROGERS, MIKE	96-5052	4576	C	W	\$12.16	15JUL89

Note: The input SAS data file TRANS.BANKING must be sorted before you can use the data for the examples in Chapter 6, "Creating and Loading SYSTEM 2000 Databases," on page 63. The DBLOAD examples create and load a three-level SYSTEM 2000 database. Each logical entry is a customer. Records at level one contain data for the accounts by customer; level two records contain transaction data. Δ

The following SORT procedure sorts the SAS data file by variables CUSTNAME and ACCTNUM:

```
proc sort data=trans.banking;
  by custname acctnum;
run;
```

After you create and sort the TRANS.BANKING data file, you can use it to create the sample BANKING database shown in Chapter 6, "Creating and Loading SYSTEM 2000 Databases," on page 63. That chapter lists the new database definition and the stored data.

Glossary

access descriptor

a SAS/ACCESS file that describes to the SAS System a single SYSTEM 2000 database. It is used as a master for creating view descriptors. See also view descriptor.

ancestor

a SYSTEM 2000 record that lies on a level above a specified record in the same path.

authority

a SYSTEM 2000 code that associates a password with a database component and determines what kind of access to the database the password can have. There are four kinds of authorities: R for retrieval, U for update, W for where-clause, and N for no access. Authorities are associated with secondary passwords.

A master password holder has full authority to the database.

batch mode

a method of executing SAS programs in which you prepare a file containing SAS statements, or job control language (JCL) statements, and any necessary operating system commands, and submit the program to the computer's batch queue. Batch execution is completely separate from other activities at your terminal. It is sometimes referred to as running in background.

browsing data

the process of viewing a file. You may see the data one observation at a time or in a tabular format. You cannot update data that you are browsing.

C-number

the letter C followed by a SYSTEM 2000 component number, for example, C200.

component

a unique name assigned to a component in a SYSTEM 2000 database definition.

component number

a unique number assigned to a component in a SYSTEM 2000 database definition. Also referred to as a C-number.

condition

a part of a SYSTEM 2000 where-clause containing an EXISTS, FAILS, EQ, NE, SPANS, LT, GT, LE, GE, or CONTAINS operator (or an equivalent symbol) and its operands, which are items or given values. See also expression.

connecting string

optional syntax that you can use in a SYSTEM 2000 where-clause included in a view descriptor. A connecting string tells the interface view engine how you want to connect conditions in the SYSTEM 2000 where-clause with ones translated from a SAS WHERE clause. Some of the available connecting strings are: *SAS*, *ANDSAS*, *SASAND*, *ANDNK*, and so on.

database

an organized collection of interrelated data. In SYSTEM 2000 software, a database stores data according to a hierarchical structure specified in its definition. See also definition.

data management software

an integrated software package that enables you to create and manipulate data in the form of databases.

data record

an identifiable set of values treated as a unit and associated with a schema record in a SYSTEM 2000 database. A logical entry is made up of related data records.

data value

in the SAS System, a character or numeric value that is stored in one variable in an observation, that is, the intersection of a variable (vertical component) and an observation (horizontal component). It refers to the actual data in a SAS data file, such as the value Smith for the variable LASTNAME.

In a SYSTEM 2000 database, a character, numeric, or date value that is stored in one item in a data record.

DBA password

a SYSTEM 2000 password that provides a level of authority between that of the master password and the secondary passwords. It allows the DBA to administer databases without being able to access the data stored in them.

definition

a blueprint for the type of data to be stored by a SYSTEM 2000 database. A definition is made up of schema records and related schema items, organized into a hierarchical structure. A definition labels the data to be stored, arranges the data into groups, and establishes relationships among the groups of data.

descendant

a SYSTEM 2000 record that lies below a specified record in a family. A record is a descendant of all its ancestors.

descriptor files

used to establish a connection between the SAS System and SYSTEM 2000 software. To create descriptor files, you use the ACCESS procedure. There are two types of descriptor files, access descriptors and view descriptors.

disjoint

schema records or items that belong to different paths in a SYSTEM 2000 database.

editing data

the process of viewing a file with the intention (and ability) of changing it. You can see the data one observation at a time or in a tabular format.

engine

components of the SAS System that read from or write to a file. Each engine allows the SAS System to access files with a particular format. See also interface view engine.

entry

See logical entry.

exclusive use

the state in which a SYSTEM 2000 database is used by one user only. Other users wanting to use the database must wait until exclusive use of the database is relinquished.

expression

a part of a SYSTEM 2000 where-clause containing an AND, OR, NOT, HAS, or AT operator (or an equivalent symbol) and its operands, which are where-clause conditions. See also condition.

family

the ancestors and descendants of a specified SYSTEM 2000 record.

file

a collection of related records treated as a unit. SAS files are processed and controlled through the SAS System and are stored in a SAS data library.

In SYSTEM 2000 software, each database contains six database files, which together hold the definition, the indexes, the values, and the hierarchical structure of the database. Database files 7 and 8 are optional files for the Update Log and Rollback Log.

format, variable

a pattern the SAS System uses to display each character or numeric data value in a variable. The default format is BEST12. for numeric variables and \$w. for character variables.

function

an arithmetic calculation stored in a SYSTEM 2000 database definition.

hierarchical data management software

software that stores and accesses data according to a database structure in which data are organized in levels, which minimizes redundancy of stored data. SYSTEM 2000 databases have hierarchical structures. See also level.

index

in the SAS System, a SAS file associated with a SAS data file that enables you to access observations by index value. Indexing usually makes data set processing faster, although the SAS System determines the most efficient way to process data maintained by the SAS System.

In SYSTEM 2000 software, values are indexed if the associated item is specified as a key item. Indexed values provide more efficient access than nonindexed values. If an item is non-key, values are not indexed, although they can be searched sequentially.

informat, variable

the pattern that the SAS System uses to read data values into a variable.

interactive line mode

an execution mode in which program statements are entered on the terminal at the SAS session prompt. Procedure output and informative messages are returned directly to your terminal display.

interface view engine

an engine that retrieves data directly from files formatted by other software vendors. The SAS/ACCESS interface to SYSTEM 2000 software includes an interface view engine.

item

See schema item.

item type

a classification according to the representation of the values to be stored in a SYSTEM 2000 database. SYSTEM 2000 software has the following item types: CHARACTER, TEXT, INTEGER, DECIMAL, MONEY, DATE, REAL (or FLOAT), DOUBLE, and UNDEFINED.

level

the organization of a SYSTEM 2000 database in which each schema record is placed at a certain level, thus reflecting a hierarchical structure.

For example, the ENTRY record is at level 0, records right below the ENTRY record are at level 1, and so on. The corresponding data records also reflect the hierarchical structure.

libref

a temporary name that points to a SAS data library. A SAS file's complete name consists of two words separated by a period. The libref is the first word and indicates the library; the second word is the specific SAS file in the library. For example, in VLIB.NEWBDAY, VLIB is the libref and tells the SAS System where to look to find the file NEWBDAY.

logical entry

all related data records pertaining to one entry in a SYSTEM 2000 database. For example, in the EMPLOYEE database, all data records pertaining to one employee make up a logical entry. In SAS terms, an observation is one path in a logical entry; that is, one logical entry can produce multiple observations.

master password

the password under which a SYSTEM 2000 database is created. The user of the master password has access to the entire database and has the authority to use any SYSTEM 2000 statement.

member

a SAS file in a SAS data library.

member name

a name given to a SAS file in a SAS data library.

member type

a SAS name that identifies what type of information is stored in the file. Member types include access, data, catalog, program, and view.

missing value

a value in the SAS System indicating that no data are stored for the variable in the current observation. By default, the SAS System represents a missing numeric value with a single period and a missing character value by a blank space.

In a SYSTEM 2000 database, missing values are called nulls. See null item and null record.

Multi-User environment

the SYSTEM 2000 execution environment in which many users access a SYSTEM 2000 database at the same time, with queries and updates being handled simultaneously by one copy of the software. See also single-user environment.

null item

an item for which space is allocated in a record, although no value currently exists in the SYSTEM 2000 database. It is similar to the SAS System's missing value, although not identical.

null record

a data record with all null items.

observation

the horizontal component of a SAS data file. It is a collection of data values associated with a single entity, such as a customer or state. Each observation contains one data value for each variable in the data file.

ordering-clause

a set of one or more user-specified SYSTEM 2000 items that governs the sorting of selected values.

password

a string of characters that must be correctly specified by a user to gain access to a SYSTEM 2000 database. The passwords protect the database from unauthorized access. A password can be a master password, a secondary password, or a DBA password.

path

a record and all its ancestors in a SYSTEM 2000 database. Schema records and data records are disjoint if they are not in the same path.

picture

the logical size (or length) of values in a SYSTEM 2000 database, specified for each schema item.

R-authority

a code that gives a secondary password the authority to retrieve a SYSTEM 2000 schema component; set by the master password holder.

record

See schema record and data record.

rollback

a recovery method whereby SYSTEM 2000 software can automatically reinstate a database after a hardware or software failure. The Rollback Log of before images and the Update Log of journaled updates provide SYSTEM 2000 software all the information needed to recover the database to an undamaged status.

SAS data file

one of the formats of a SAS data set. A SAS data file contains both data values and descriptor information associated with the data, such as the variable attributes. In previous releases of the SAS System, all SAS data sets were SAS data files. SAS data files are of the member type DATA.

A SAS data file is arranged in a rectangular, two-dimensional format. Each item in a SAS data file is called a data value. Data values in a row comprise an observation and those in a column comprise a variable.

SAS data library

a collection of SAS data sets and other SAS files that are stored and referenced as a unit.

SAS data set

a collection of information stored as a unit under the SAS System. Several SAS data sets can be stored in a SAS data library. Unlike external files, a SAS data set is processed and controlled only through the SAS System. See SAS data file and SAS data view for how SAS data sets are implemented in Version 7 of the SAS System.

SAS data view

one of the formats of a SAS data set. A SAS data view contains only the descriptor and other information required to retrieve the data values from other SAS files or external files. Both PROC SQL views and SAS/ACCESS views are considered SAS data views. SAS data views are of the member type VIEW.

schema item

names and defines the characteristics of a group of SYSTEM 2000 database values. That is, a schema item has a name, a type, and a picture (length). Each value stored in a SYSTEM 2000 database corresponds to a schema item.

A SYSTEM 2000 schema item is analogous to a SAS variable. Same as item.

schema record

an identifiable set of associated schema items treated as a unit in a SYSTEM 2000 database. Same as record.

secondary password

a password, other than the master password or DBA password, having restricted SYSTEM 2000 statement usage and specifically assigned update, retrieval, and where-clause authorities for any or all components in a SYSTEM 2000 database.

single-user environment

the SYSTEM 2000 execution environment in which you are working with your own copy of SYSTEM 2000 software. Usually, in a single-user environment, you have exclusive access to the database. However, the single-user environment, can be configured so that that all users can query the database. See also Multi-User environment.

stored string

one or more SYSTEM 2000 statements stored in a database definition. For example, you can store a SYSTEM 2000 where-clause as a string.

U-authority

a code that gives a secondary password the authority to update a SYSTEM 2000 schema item or record; set by the master password holder.

variable

a column in a SAS data file. Each SAS variable can have the following attributes: name, type (character or numeric), length, format, informat, and label. In the ACCESS procedure, variables are created from SYSTEM 2000 item names.

view

a definition of a virtual data set that is named and stored for later use. This file contains no data, but it describes or defines data stored elsewhere. SAS data views can be created by the ACCESS and SQL procedures. See also SAS data view.

For example, when a SAS/ACCESS view – a view descriptor – is referenced in the SAS PRINT procedure, the view reads data directly from a SYSTEM 2000 database. You can also reference this view in certain SAS procedures to update the database described by a SAS/ACCESS view.

A view defined by the SQL procedure reads data from its underlying SAS data files, other PROC SQL views, or SAS/ACCESS views. Its output table can be a subset or a superset of one or multiple underlying structures. However, in Release 6.06, you cannot reference a PROC SQL view to update its underlying data. ?????

view descriptor

a SAS/ACCESS file that defines a subset of a database described by an access descriptor. The subset consists of selected items in a given path of one SYSTEM 2000 database with optional selection and ordering criteria. See also access descriptor.

W-authority

a code that gives a secondary password the authority to use a SYSTEM 2000 schema item or record for selection criteria in a where-clause.

where-clause

a set of one or more user-specified conditions that states the selection criteria for SYSTEM 2000 updates or retrievals.

The correct bibliographic citation for this manual is as follows: SAS Institute Inc., *SAS/ACCESS® Interface to SYSTEM 2000® Data Management Software: Reference, Version 8*, Cary, NC: SAS Institute Inc., 1999.

**SAS/ACCESS® Interface to SYSTEM 2000® Data Management Software:
Reference, Version 8**

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ISBN 1-58025-549-3

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SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

1st printing, October 1999

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