



Dictionnaire de données SAS

Club SAS de Québec – 2016-11-01

Patrice Bourdages
Conseiller senior SAS - CGI



La force de l'engagement^{MD}

Ordre du jour

- A qui s'adresse cette conférence
- Objectifs de la formation
- Provenances des données
- Exemple d'environnement SAS
- Tables du dictionnaire (27)
- Tableau de référence
- Exemples d'utilisation
- Extraction du dictionnaire (pratique)
- Références
- Conclusion



A qui s'adresse cette conférence

- Programmeur SAS
 - Analyste SAS
 - Analyste-programmeur SAS
 - Actuaire
 - Administrateur de base de données
 - Statisticiens
 - Etc...
-
- Tout le monde qui utilise SAS quoi ... !!!



Objectifs de la formation

- Permettre à l'utilisateur de :
 - connaître l'existence du dictionnaire de données SAS
 - d'acquérir des connaissances sur des utilisations potentielles de celui-ci dans ses travaux quotidiens.

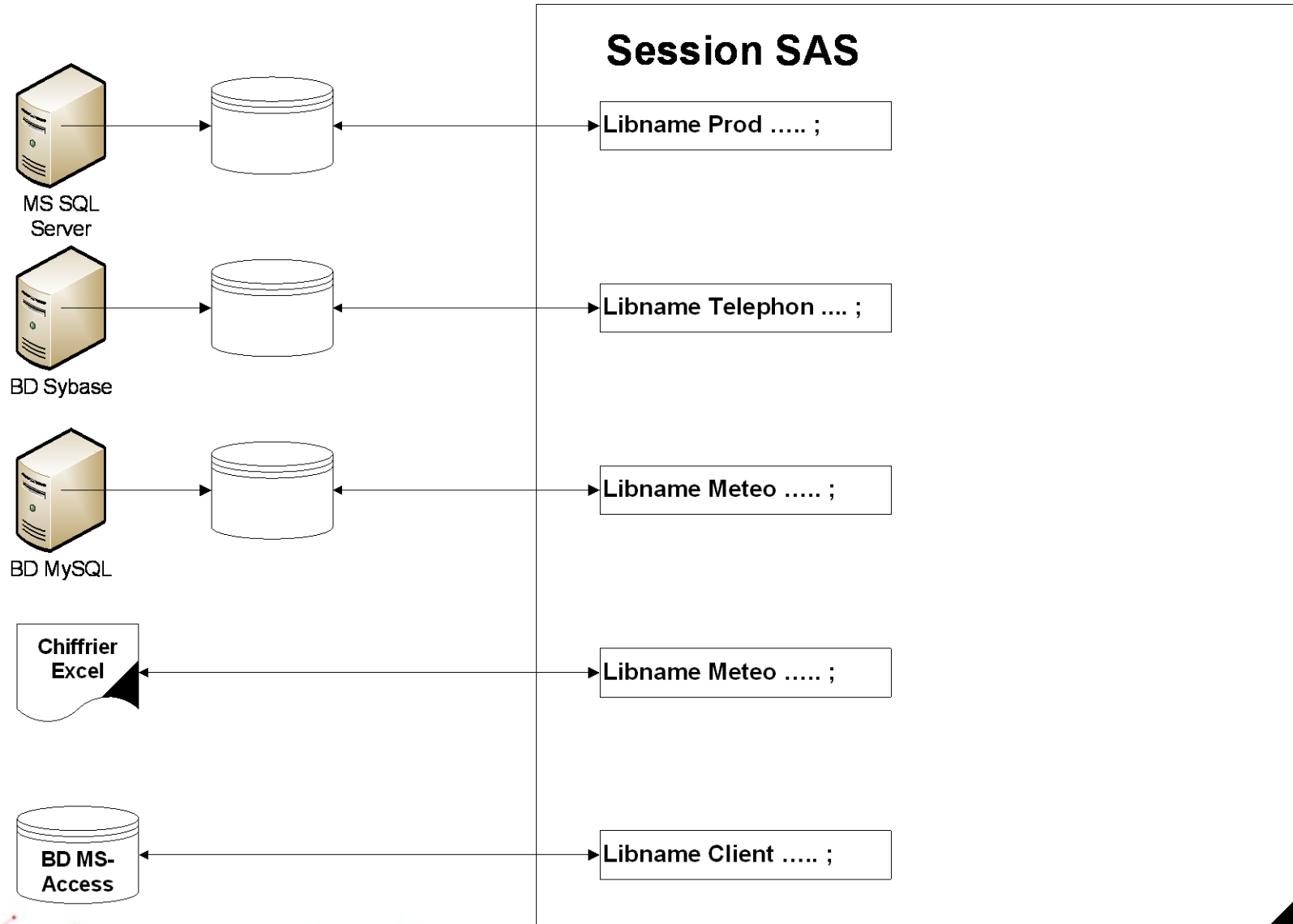


Provenance des données (exemples)

- Tables SAS
- Base de données externes
 - Microsoft SQL Server
 - Oracle
 - MySQL
 - Sybase
 - Omnis7
 - Microsoft Access
 - Etc...
- Tableurs
 - Microsoft Excel
 - Etc...



Exemple d'environnement de travail SAS



Tables du dictionnaire de données SAS (1)

DICTIONARY Table	SASHELP View	Description
CATALOGS	VCATALG	Information sur les CATALOGS disponible dans la session SAS courante.
CHECK_CONSTRAINTS	VCHKCON	Contains information about known check constraints.
COLUMNS	VCOLUMN	Contient l'information sur les colonnes des tables disponibles dans la session courante de SAS.
CONSTRAINT_COLUMN_USAGE	VCNCOLU	Contains information about columns that are referred to by integrity constraints.
CONSTRAINT_TABLE_USAGE	VCNTABU	Contains information about tables that have integrity constraints defined on them.
DATAITEMS	VDATAIT	Contains information about known information map data items.
DESTINATIONS	VDEST	Contains information about known ODS destinations.
DICTIONARIES	VDCTNRY	Contains information about all DICTIONARY tables.
ENGINES	VENGINE	Contains information about SAS engines.



Tables du dictionnaire de données SAS (2)

DICTIONARY Table	SASHELP View	Description
EXTFILES	VEXTFL	Contient l'information en lien avec les fichiers externes connus.
FILTERS	VFILTER	Contient l'information concernant les différents filtres.
FORMATS	VFORMAT VCFORMAT	Contient l'information sur les FORMATS et les INFORMATS de la session active.
FUNCTIONS	VFUNC	Contient l'information sur les FUNCTIONS qui sont accessible dans la session courante.
GOPTIONS	VGOPT VALLOPT	Contains information about currently defined graphics options (SAS/GRAPH software). SASHELP.VALLOPT includes SAS system options as well as graphics options.
INDEXES	VINDEX	Liste les INDEXES qui sont actuellement définis sur les tables accessibles de la session courante.
INFOMAPS	VINFOMP	Contient de l'information sur les « INFORMATION MAPS » de la session courante.



Tables du dictionnaire de données SAS (3)

DICTIONARY Table	SASHELP View	Description
LIBNAMES	VLIBNAM	Contains information about currently defined SAS libraries.
MACROS	VMACRO	Contient l'information sur les macros qui sont actuellement définies dans la session courante de SAS.
MEMBERS	VMEMBER VSACCES VSCATLG VSLIB VSTABLE VSTABVW VSVIEW	Contains information about all objects that are in currently defined SAS libraries. SASHELP.VMEMBER contains information for all member types; the other SASHELP views are specific to particular member types (such as tables or views).
OPTIONS	VOPTION VALLOPT	Contains information about SAS system options. SASHELP.VALLOPT includes graphics options as well as SAS system options.
REFERENTIAL_CONSTRAINTS	VREFCON	Contains information about referential constraints.



Tables du dictionnaire de données SAS (4)

DICTIONARY Table	SASHELP View	Description
REMEMBER	VREMEMB	Contains information about known remembers.
STYLES	VSTYLE	Information sur les styles ODS disponibles dans la session courante de SAS.
TABLE_CONSTRAINTS	VTABCON	Contient l'information relative aux contraintes d'intégrités sur les tables actuellement accessibles dans la session SAS courante.
TABLES	VTABLE	Contient la liste des TABLES SAS accessible dans la session courante de SAS.
TITLES	VTITLE	Information sur les TITLES et les FOOTNOTES disponibles dans la session courante de SAS.
VIEWS	VVIEW	Information sur les vues disponibles dans la session courante de SAS.



Liste de référence

Summary of SAS Dictionary Tables and Views

Notation:

- In headers, **dict** indicates SQL usage (dictionary.*tableName*); **sh** indicates SASHELP usage (sashelp.*viewName*); **PW** identifies tables with no data displayed if member is password-protected.
- indicates a field used for uniquely identifying an observation
- NN** identifies a field whose value may be missing for non-native SAS file types (including SAS Transport files).
- V** identifies a field whose value may be missing or 0 for SAS views
- Highlighted** names are unique to Version 9.2 (TS2M0)

Usage Notes:

- MEMNAME:**
 - Native SAS engines store member names in upper case. Other engines (access, excel, *et al.*) preserve case and spacing. Using the EXCEL engine, for example, program references to sheet name "Sheet One" must be "Sheet One\$n"
 - Generation datasets are stored as memname[#nnn] (e.g., MAST, MAST#001)
- Non-native/"foreign" files: if the data source's name exceeds 32 characters, has security limitations, or uses syntax not understood by SAS, the data source will *not* be represented in *any* Table or View.
- Not all tables are shown

<i>dict.catalogs</i> / <i>sh.vCatalog</i> Catalog Member Attributes		
► libname	\$8	Library name [upper case]
► memname	\$32	Member name [upper case]
memtype	\$8	Member type [CATALOG]
► objname	\$32	Object name [upper case]
► objtype	\$8	Object type [SCL FRAME FORMAT FORMATC MACRO...]
objdesc	\$256	Object description
created	num	Date created [DATETIME informat/format]
modified	num	Date modified [DATETIME informat/format]
alias	\$8	Object alias [upper case]
level	num	Library concatenation level [0, 1, 2, ...]

<i>dict.columns</i> / <i>sh.vColumn</i> PW Variable Attributes		
► libname	\$8	Library name [upper case]
► memname	\$32	Member name.
► memtype	\$8	Member type [DATA VIEW]
► name	\$32	Column name [case as-is from data set creation except for transport files (always upper-cased)] Can contain blanks.

<i>dict.dictionaries</i> / <i>sh.vDctnry</i> Dictionary Table Attributes		
npos	num	Column position [offset within observation. >= 0]
varnum	num	Column number in table [1, 2, 3, ...]
format	\$49	Column format [may include width, period]
informat	\$49	Column informat [may include width, period]

<i>dict.engines</i> / <i>sh.vEngine</i> Attributes of <i>all</i> available engines		
► engine	\$8	Engine name [upper case]
alias	\$8	Alias [upper case]
description	\$40	Description
preferred	\$3	Preferred? [yes no]
properties	\$1024	Engine dialog properties

<i>dict.extfiles</i> / <i>sh.vExtfl</i> User, system external files		
► fileref	\$8	Fileref [upper case] [duplicated for concatenated files]
► xpath	\$1024	Path name or piped command [case preserved]
xengine	\$8	Engine name [upper case]
directory	\$3	Does fileref point to a directory [yes no]
exists	\$3	Does the location exist? [yes no]
fileSize	num	Size of file, in bytes
level	num	File concatenation level
modDate	num	File modification date-time [DATETIME informat/format]
temporary	char	Allocated as a temporary location? [yes no]

<i>dict.formats</i> / <i>sh.vFormat</i> Attributes of system/user-written formats		
► libname	\$8	Library name [upper case] [when source='C']
► memname	\$32	Member name [upper case] [when source='C']
► path	\$1024	Path name [case preserved] [when source='U']
► objname	\$32	Object name [upper case] [e.g. GROUP, TYPE] [when source='U', 'C']
► fmtname	\$32	Format name [upper case] [e.g., GROUP, \$TYPE] [no decimal point]
► fmttype	\$1	Format type [F (format) I (informat)]
source	\$1	Format source [U (system, using DLL) B (built-in) C (catalog, i.e., created by PROC FORMAT)]

Exemples d'utilisations

- Recherches
 - une variable
 - un libellé
 - une table
 - Etc...
- Automatisation
 - Création de programmes de chargement
 - Valider la structure d'une table source vs table SAS actuelle
 - Voir si ajout, retrait ou changement dans la structure, etc...



Syntaxe utilisée (Librairies SAS)

**** Pour connaître la liste des librairies dont vous avez accès **;**

proc sql;

create table work.dict_librairies as

select *

from dictionary.libnames;

quit;

	libname	engin	path	level	fileformat	readonly	sequential	sysdesc	sysname	sysvalue	temp
1	WORK	V9	W:\SASWork\T20948...	0 7	non	non	non	Informations dépenda...	Nom du fichier	W:\SASWork\T20...	oui
2	SASDATA	BASE	C:\SAS\Config\Lev1\S...	0 7	non	non	non	Informations dépenda...	Nom du fichier	C:\SAS\Config\Le...	non
3	SQDPPFC13	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	FC1	non
4	SQDPPFC12	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	FC1	non
5	SQDPPAA22	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	AA2	non
6	SQDPTS21	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	TS2	non
7	SQDPTS11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	TS1	non
8	SQDPTEX1	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	TEX	non
9	SQDPTB11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	TB1	non
10	SQDPPRW31	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RW3	non
11	SQDPPRX1	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RRX	non
12	SQDPPRR41	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RR4	non
13	SQDPPRR11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RR1	non
14	SQDPPRC41	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RC4	non
15	SQDPPRC21	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RC2	non
16	SQDPPRC11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RC1	non
17	SQDPPRB11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	RB1	non
18	SQDPPW21	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PW2	non
19	SQDPPS21	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PS2	non
20	SQDPPR11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PR1	non
21	SQDPPN11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PN1	non
22	SQDPPF31	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PF3	non
23	SQDPPF21	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PF2	non
24	SQDPPF11	ODBC	SQD001P1_Dif_1	0 7	non	non	non	ODBC ACCESS ENG...	Schema/Owner	PF1	non

Syntaxe utilisée (Tables SAS)

** Pour produire la liste de toutes les tables disponibles **;

```
proc sql;
```

```
  create table work.dict_tables as
```

```
    select *
```

```
    from dictionary.tables;
```

```
quit;
```

	libname	memname	memtype	dbms_memtype	memlabel	typemem	crdate	modate	nobs	obsle	nvar
1	WORK	DICT_1	DATA			DATA	28OCT16:14:40:37	28OCT16:14:40:37	133	4137	11
2	WORK	DICT_2	DATA			DATA	28OCT16:14:43:15	28OCT16:14:43:15	2217	1031	41
3	WORK	_PRODSAVAIL	DATA			DATA	28OCT16:14:40:26	28OCT16:14:40:26	8	78	6
4	SQDPFC13	ADRINEX	DATA	TABLE		DATA	.	.	.	0	11
5	SQDPFC13	ADRSLI	DATA	TABLE		DATA	.	.	.	0	19
6	SQDPFC13	ADRTIER	DATA	TABLE		DATA	.	.	.	0	13
7	SQDPFC13	APPELLA	DATA	TABLE		DATA	.	.	.	0	7
8	SQDPFC13	AUTSICL	DATA	TABLE		DATA	.	.	.	0	8
9	SQDPFC13	CLDTRED	DATA	TABLE		DATA	.	.	.	0	10
10	SQDPFC13	CLIADHO	DATA	TABLE		DATA	.	.	.	0	7
11	SQDPFC13	CLIADMN	DATA	TABLE		DATA	.	.	.	0	13
12	SQDPFC13	CLIADNI	DATA	TABLE		DATA	.	.	.	0	13

Syntaxe utilisée (Colonnes)

** Pour produire la liste de toutes les colonnes d'une table **;

```
proc sql;
```

```
  create table work.colonnes as
```

```
    select *
```

```
    from dictionary.columns;
```

```
quit;
```

	libname	memname	memtype	name	type	length	npos	varnum	label	format	informat	idusage	sorted	xtype
1	WORK	DICT_1	DATA	libname	char	8	8	1	Library Name				0	char
2	WORK	DICT_1	DATA	engine	char	8	16	2	Engine Name				0	char
3	WORK	DICT_1	DATA	path	char	1024	24	3	Pathname				0	char
4	WORK	DICT_1	DATA	level	num	8	0	4	Library Concatena...				0	num
5	WORK	DICT_1	DATA	fileformat	char	8	1048	5	Default File Format				0	char
6	WORK	DICT_1	DATA	readonly	char	3	1056	6	Read-only?				0	char
7	WORK	DICT_1	DATA	sequential	char	3	1059	7	Sequential?				0	char
8	WORK	DICT_1	DATA	sysdesc	char	1024	1062	8	System Informatio...				0	char
9	WORK	DICT_1	DATA	sysname	char	1024	2086	9	System Informatio...				0	char
10	WORK	DICT_1	DATA	sysvalue	char	1024	3110	10	System Informatio...				0	char
11	WORK	DICT_1	DATA	temp	char	3	4134	11	Temp Access?				0	char
12	WORK	DICT_2	DATA	libname	char	8	136	1	Library Name				0	char
13	WORK	DICT_2	DATA	memname	char	32	144	2	Member Name				0	char
14	WORK	DICT_2	DATA	memtype	char	8	176	3	Member Type				0	char
15	WORK	DICT_2	DATA	dbms_memtype	char	32	184	4	DBMS Member Ty...				0	char
16	WORK	DICT_2	DATA	memlabel	char	256	216	5	Data Set Label				0	char
17	WORK	DICT_2	DATA	typemem	char	8	472	6	Data Set Type				0	char
18	WORK	DICT_2	DATA	crdate	num	8	0	7	Date Created	DATETIME.	DATETIME.		0	num
19	WORK	DICT_2	DATA	modate	num	8	8	8	Date Modified	DATETIME.	DATETIME.		0	num

Syntaxe utilisée (Formats)

**** Pour produire la liste de tous les formats disponibles dans la session SAS courante **;**

proc sql;

create table work.d_formats as

select *

from dictionary.formats

where libname = "WORK";

quit;

	libname	memname	path	objname	fmtname	fmttype	source
1	WORK	FORMATS		F_SEXE	F_SEXE	F	C
2	WORK	FORMATS		TELEPHONE	TELEPHONE	F	C

Démonstration

Psst! On passe à l'autre écran ...



Références

- **Accessing SAS System Information by Using DICTIONARY Tables**
 - <http://support.sas.com/documentation/cdl/en/sqlproc/62086/HTML/default/viewer.htm#a001385596.htm>
- **Summary of SAS Dictionary Tables and Views**
 - <http://www.codecraftersinc.com/pdf/DictionaryTables.pdf>
 - <http://www.codecraftersinc.com/pdf/DictionaryTablesRefCard.pdf>



Conclusion

- Tables du dictionnaire de données SAS =
Référentiel pour vous y retrouver dans vos propres environnements
- Utile pour vous? J'en suis convaincu



Période de question

