

# USING SAS TO MONITOR ACCOUNT CODES

## S.D. Smith, Corp. of Lloyd's

### 1. THE CORPORATION OF LLOYD'S

The Corporation of Lloyd's is the service organisation for the Lloyd's of London international insurance market. It provides computing, accounting and administrative facilities for the Lloyd's market.

The Corporation's computer facilities include :-

IBM 3083B	- MVS/JES3
IBM 3083J	- MVS/JES3, DOS/VS under VM/CMS
DEC PDP11/70 (x3)	- RSX11M+

There are 3 main areas within the Corporation. They are :-

#### a) Membership Group

The Membership Group handle the membership, business interests and finances of the members of Lloyd's.

#### b) Policy Signing Office

The Policy Signing Office validate Premiums, Claims and other insurance business after the initial acceptance by the Underwriters. This insurance information is entered on the DEC computers via direct data entry, and is prepared for Data Processing.

#### c) Systems and Communications

Systems and Communications provide data processing, system development and communications facilities for the Lloyd's market.

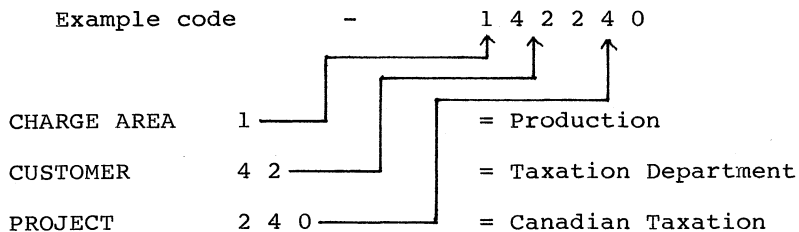
### 2. THE PROBLEM

To devise an effective method of checking and reporting on all three IBM operating systems - MVS DOS and VM. This is in preparation for a Costing project planned for 1984.

It is important that the accounting system is used correctly to ensure that the resource usage for each application is recorded accurately. Inaccurate accounting data will give inaccurate costing information, which is undesirable.

### 3. ACCOUNT CODE STRUCTURE

Job account codes are 6 digit codes and can be split into 3 sub-codes. The 1st digit gives a charge area, such as Production or System Testing. The 2nd and 3rd digits give a customer code, such as Accounts of Brokers. The last 3 digits give a project code, such as Statistics or Rates of Exchange.



### 4. PERFORMANCE DATA COLLECTION

Performance related data is collected and processed using S.A.S. and is then stored on various PDB's (Performance Databases).

Detailed data is kept for 7 days and is then overwritten by the latest days data. For example, on a wednesday the previous wednesday's performance data is overwritten with the latest days data. In addition to this, an historic database is updated each day, giving summarised historic performance data for Capacity Planning.

The daily PDB's are used as input to the account code checks because they contain sufficient information to enable account code misuse to be traced back to the users and corrected.

The performance measurement and collection tools used are:

SMF and RMF	on	MVS
Power Account	on	DOS
VMAP	on	VM

See figure 1 for an example of what is stored on a VM PDB.

5. USING 'FORMAT' AND 'PROC FORMAT'

To produce a description for each account sub-code, 3 sets of formats are created and stored on a library. They can then be used to produce account code descriptions by using the FORMAT statement.

One set of formats is created for each account sub-code (Charge Area, Customer and Project). The three format lists are shown in figure 2.

6. EXAMPLE OF USE OF 'FORMAT' STATEMENT

```
DATA CODE_EX; INPUT ACCOUNT £;  
SKIP;  
  CHARGE=SUBSTR (ACCOUNT,1,1);  
  CUSTOMER=SUBSTR (ACCOUNT,2,2);  
  PROJECT=SUBSTR (ACCOUNT,4,3);  
CARDS;  
142240  
;;;  
PROC PRINT DATA=CODE_EX;  
  FORMAT CHARGE £CHARGE;  
  FORMAT CUSTOMER £CUST.;  
  FORMAT PROJECT £PROJ.;  
TITLE1 FORMATTED OUTPUT LIST OF ACCOUNT CODE 142240;  
TITLE2 SHOWING ACCOUNT CODE, CHARGE AREA, CUSTOMER AND PROJECT;
```

→ { £CHARGE. refers to the format list £CHARGE in the format library. The '£' tells SAS that this is a character format.  
£CUST. refers to the format list £CUST in the format library.  
£PROJ. refers to the format list £PROJ in the format library.

Below is the output from the above program.

```
          FORMATTED OUTPUT LIST OF ACCOUNT CODE 142240  
          SHOWING ACCOUNT CODE, CHARGE ARE, CUSTOMER AND PROJECT  
  
OBS   ACCOUNT      CHARGE                CUSTOMER      PROJECT  
  1    142240      DPD - ALL PRODUCTION    TAXATION      CANADIAN TAX PROCESSING
```

## 7. CREATING ACCOUNT CODE REPORTS

Three S.A.S. programs are run weekly, one for each operating system. They read the previous weeks accounting data, summarise it and create reports highlighting any invalid use of the account code system.

Two examples of the reports are shown in figures 3 and 4.

## 8. BENEFITS OF USING S.A.S.

- a) Using S.A.S. made the development and implementation time very short.
- b) The 3 sets of formats can be used together as a detailed account code check list.
- c) The final reports show up the misuse of account codes very clearly and easily.
- d) The reports can be customised for different recipients very easily.



PROC FORMAT DDNAME=FMTLIB;

VALUE #ACODE

'0'='TD - INC. DBA'  
'1'='DPD - ALL PRODUCTION'  
'2'='RSVRD RESERVED'  
'3'='RSVRD RESERVED'  
'4'='SDD - SYSTEM TESTING'  
'5'='SDD - IMPLEMENTATION(INC PIS)'  
'6'='SDD - MAINT. FIREFIGHTING'  
'7'='SDD - MAINT. ENHANCEMENTS'  
'8'='SDD - PROGRAMMING'  
'9'='RSVRD RESERVED'

OTHER='\*\*\*\*\*INVALID\*\*\*\*\*';

PROC FORMAT DDNAME=FMTLIB;

VALUE #CHARGE

'36'-'38'='MEMBERSHIP SERV.'  
'24'-'26'='L.P.S.O.'  
'99'='MANAGEMENT SERVICES'  
'60'-'62'='DATA BASE ADMIN'  
'54'-'56'='SYSTEM REDESIGN'  
'15'-'17'='FINANCE'  
'42'-'44'='TAXATION'  
'00'-'02'='HOUSEKEEPING'  
'57'-'59'='PROJECT DEVELOPMENT'  
'06'-'08'='ADVS/LEGISLATION'  
'30'-'32'='L.U.C.R.O.'  
'18'-'20'='L.A.C.C.'  
'33'-'35'='L.U.N.C.O.'  
'51'-'53'='DATA PROCESSING'  
'45'-'47'='UNDERWRITERS'  
'12'-'14'='BROKERS'  
'63'-'65'='LOCAS'  
'39'-'41'='SUPPLY AND COMMS'  
'27'-'29'='L.S.S.D.'  
'03'-'05'='ACCOUNTS'  
'48'-'50'='TECHNICAL DEPT'  
'21'-'23'='L.L.P. LTD'  
'09'-'11'='AGENCY'  
'66'-'68'='FODEN PATTERSON'

OTHER='\*\*\*\*\*INVALID\*\*\*\*\*';

PROC FORMAT DDNAME=FMTLIB;

VALUE #PROJ

'198'='MCS PRODUCTION BATCH (DAILY)'  
'200'='MCS PRODUCTION BATCH (WEEKLY)'  
'202'='MCS PRODUCTION BATCH (MONTHLY)'  
'204'='MCS PRODUCTION BATCH (ANNUAL)'  
'206'='MCS PRODUCTION BATCH (SPEC REQ)'  
'208'='MCS PRODUCTION SYSTEM SECURITY'  
'210'='MCS PRODUCTION SYSTEM RECOVERY'  
'212'='MCS PROMOTION & VERSION TESTING'  
'214'='CENTRAL SOLVENCY TST BATCH/PRODUCTION'  
'216'='MCS MAILING RUNS'  
'220'='TRIENNIAL VALUATION'  
'222'='LARGE SYNDICATE STATISTICS'  
'224'='STOCK CONTROL'  
'228'='USDTR PRINTS.  
'229'='S.A.S. USE'  
'230'='USDTR AMENDMENTS.  
'232'='LATF AFFORTIONMENTS.  
'234'='EFFECTIVELY CONNECTED.  
'236'='USDTR DTR REPORTS.  
'238'='CANTAX RETURN PRODUCTION.  
'240'='CANADIAN TAX PROCESSING.  
'242'='CANTAX AMENDS. PRINTS.  
'244'='PROFIT & LOSS RETURN PROD.  
'246'='PROFIT & LOSS PROCESSING.  
'248'='ILL & KENTUCKY  
'252'='I.R.S. PROGS.  
'254'='FEDERAL EXCISE TAX CEDED  
'258'='NEW NAMES  
'260'='FEDERAL EXCISE TAX ASSUMED  
'256'='BKR/UMR STATS  
OTHER='\*\*\*\*\*INVALID\*\*\*\*\*';

FIGURE 2.

CAPACITY MANAGEMENT REPORTING SYSTEM  
 PRINT OF ACCOUNT CHARGES USED IN THE PREVIOUS WEEK  
 SHOWING JOB NAME, ACCOUNT CODE, PROGRAMMER'S COMMENT (PGMNAME),  
 CHARGE AREA (CA), CUSTOMER (CUST) AND PROJECT (PPS).  
 OPERATING SYSTEM = MVS/JES3

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CPS	JOBNAME	AMOUNT	PGM	CA	CC	PPS
677	FLO2910R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	DDE & CPS LETTERS OF CREDIT
678	FLO2910R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	LOC FOCUS PILOT
679	FLO2910R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	DDE & CPS LETTERS OF CREDIT
680	FLO2915R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	LOC FOCUS PILOT
681	FLO2917R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	LOC FOCUS PILOT
682	FLO2918R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	LOC FOCUS PILOT
683	FLO2919R	819579	PDS PROJ	SDD - PROGRAMMING	FINANCE	LOC FOCUS PILOT
684	FLO2919T	854445	FLO29	SDD - PROGRAMMING	SYSTEM REDESIGN	STATISTICS
685	FLO29LNC	454445	S06 FN 36	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
686	FLO29LND	454445	S06 FN 37	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
687	FLO29LNE	454445	S06 FN 36	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
688	FLO29LNF	454445	S06 FN 37	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
689	FLO29LNG	454445	S06 FN 36	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
690	FLO29LNH	454445	S06 FN 37	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
691	FLO29LNI	454445	S06 FN 36	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
692	FLO29LNI	454445	S06 FN 37	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
693	FLO29LST	854444	FLO29	SDD - PROGRAMMING	SYSTEM REDESIGN	STATISTICS
694	FLO29MI	454442	SCS349C MIGRATION	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
695	FLO29000	454444	FLO02	SDD - PROGRAMMING	SYSTEM REDESIGN	STATISTICS
696	FLO29S01	454445	IEHLIST STATS	SDD - PROGRAMMING	SYSTEM REDESIGN	STATISTICS
697	FLO29T00	454412	A42-041 TAB0 EXEC	SDD - SYSTEM TESTING	SYSTEM REDESIGN	CPS TABLE FILES
698	FLO29001	454445	VOLST UNLOCK	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
699	FLO29001	454445	S06 FN 42	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
700	FLO29003	454445	S06 FN 43	SDD - SYSTEM TESTING	SYSTEM REDESIGN	STATISTICS
701	FLO29006	854445	S06 LOAD REP ELMS	SDD - PROGRAMMING	SYSTEM REDESIGN	STATISTICS
702	FLO29007	854445	S06 CREATE REPCRTS	SDD - PROGRAMMING	SYSTEM REDESIGN	STATISTICS
703	FLO31ANN	742465	CEDED	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
704	FLO31JES	742466	COMMON CODE	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
705	FLO31JES	742466	FLOCOM	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
706	FLO31JES	742466	FLOCOMLK	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
707	FLO31JES	742466	FLPLILKS	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
708	FLO31MVF	742465	TAX	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
709	FLO31TS1	824276	TSS20	SDD - PROGRAMMING	L.P.S.O.	NEW FACILITIES
710	FLO31333	742465	NEWNAMES	SDD - MAINT. ENHANCEMENTS	TAXATION	TAXATION
711	LP001CAT	624102	LIST CAT	SDD - MAINT. FIREFIGHTING	L.P.S.O.	CENTRAL PROCESSING SYSTEM
712	LP001LIE	624102	LIBRARY DMLP ADD	SDD - MAINT. FIREFIGHTING	L.P.S.O.	CENTRAL PROCESSING SYSTEM
713	LP001LST	624102	LIBRARY LISTING	SDD - MAINT. FIREFIGHTING	L.P.S.O.	CENTRAL PROCESSING SYSTEM
714	LP001SKT	824670	TIMESORT	SDD - PROGRAMMING	L.P.S.O.	PROGRAMMING ENVIRONMENT MAINT.
715	LP001VOL	624102	DISK VOLUMES	SDD - MAINT. FIREFIGHTING	L.P.S.O.	CENTRAL PROCESSING SYSTEM
716	LP010CAT	724376	LIST CAT	SDD - MAINT. ENHANCEMENTS	L.P.S.O.	NEW FACILITIES
717	LP010CA	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
718	LP010DC1	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
719	LP010DC2	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
720	LP010DC5	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
721	LP010DC6	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
722	LP010DC7	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
723	LP010G46	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
724	LP010G03	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
725	LP010G04	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
726	LP010G05	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
727	LP010G06	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS
728	LP010G07	854337	BRUCE RANDALL X3610	SDD - PROGRAMMING	SYSTEM REDESIGN	SPECIAL SETTLEMENTS

FIGURE 3.

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CAPACITY MANAGEMENT REPORTING SYSTEM  
 PRINT LEADALIC ACCOUNT CODES USED IN THE PREVIOUS WEEK.  
 SHOWING JOBNAME, ACCOUNT CODE, PROGRAMMER ELEMENT (PGMNAME),  
 CHARGE AREA (AA), CUSTOMER (CC) AND PROJECT (PPS).  
 REPAIRING SYSTEM 4 4/5/7/9/03

LINE	JOB NAME	ACCOUNT	PGMNAME	A	CC	PPS
1	CIL10050	196229	SERVICE LEVELS	DPD - ALL PRODUCTION	MANAGEMENT SERVICES	#####INVALIDID#####
2	CIL61543	195228	PATRIOT3BLAND	DPD - ALL PRODUCTION	MANAGEMENT SERVICES	#####INVALIDID#####
3	LE402560	724019	INDEX AUDIT	SDD - SYSTEM TESTING	L.P.S.J.	#####INVALIDID#####
4	FL014023	-24023	FL001	SDD - SYSTEM TESTING	L.P.S.O.	#####INVALIDID#####
5	FL014023	-24023	CPA306 PUT PAY	SDD - SYSTEM TESTING	L.P.S.O.	#####INVALIDID#####
6	LPO14003	700003	CP032R SYSLINK	SDD - MAINT. ENHANCEMENTS	HOUSEKEEPING	#####INVALIDID#####
7	LPO14003	700003	CP505G DMLP AED	SDD - MAINT. ENHANCEMENTS	HOUSEKEEPING	#####INVALIDID#####
8	LE014003	700003	UMB05G DMLP FEPL	SDD - MAINT. ENHANCEMENTS	HOUSEKEEPING	#####INVALIDID#####
9	LPC14003	700003	CMB05G DMLP TEMP	SDD - MAINT. ENHANCEMENTS	HOUSEKEEPING	#####INVALIDID#####
10	PIT01CAT	957003	LIST CAT	SDD - PROGRAMMING	PROJECT DEVELOPMENT	#####INVALIDID#####
11	SC022TAP	357003	JE TOMPKINS	SDD - PROGRAMMING	PROJECT DEVELOPMENT	#####INVALIDID#####

FIGURE 4.