

# Cheryl Watson's *Tuning Letter*



## Obtaining SMF Counts

While reading this section, it will be handy for you to have a listing of SMF record counts from your own system to compare to the results of our survey. Either a 24-hour period or a peak hour would be sufficient. Here are three ways to get the information:

1. Most sites use IFASMFDL (SMF VSAM files) or IFASMFDL (SMF logger) to offload their SMF data for long term retention, such as to tape volumes. An example of the output from these programs is shown in Figure 1. This represents 24 hours from a site that uses 15-minute SMF intervals and has turned off types 19, 40, 92, and 99. These programs do not show subtype information, however the EWCP project at SHARE has submitted a requirement to IBM to include them in a future release.
2. Many installations use SAS to read their SMF files. If you're using MXG, the report shown in Figure 2 is produced during the BUILDpdb process. This doesn't give record sizes or sub-types, but it does give record counts by system, which can be quite handy.
3. If you have MXG, you also have a program called VMXGGETM. **Dr. Barry Merrill** suggests that this provides a better analysis because it gives both counts and bytes. The total amount of bytes is more important than the record count, but I use percent of records in this article because that's what most people have access to. Here is what you need to run the program:

```
//SMF DD  
//SYSIN DD *  
%VMXGGETM(SMFOUT=,FREQ=YES);
```

(The VMXGGETM utility can also be used to create a file of, for example, ten SMF records of each ID and subtype, to use in testing MXG, etc. Comments in the VMXGGETM member document its use.)

A sample report is shown in Figure 3.

4. **Scott Barry** of SBBWorks has written a program to provide SMF types and subtypes via a report and an email of a CSV file for later printing. An example from the report is shown in Figure 4. As an interesting example of the use of the CSV data, Scott produced an Excel PivotPlot Chart seen in Figure 5. I would take the CSV data, multiply the average record size by the number of records to get the total bytes for each subtype, and use that to calculate the true percentage of the SMF data by subtype, similar to the VMXGGETM program above. You can find Scott's program and sample reports in a new portion of our Web site at [www.watsonwalker.com/freetools.html](http://www.watsonwalker.com/freetools.html).

If you produce a CSV file with subtypes from Scott's program, I would love to get a copy so that I can perform a more thorough analysis of subtypes. Email it to [technical@watsonwalker.com](mailto:technical@watsonwalker.com).

If you have been using Sort or a non-SAS program to get the subtypes, would you share that program with our readers and me?

**Figure 1 - IFASMFDP Report of SMF Record Types**

SUMMARY ACTIVITY REPORT						
START DATE-TIME	05/20/2008-00:00:12			END DATE-TIME	05/21/2008-00:00:11	
RECORD TYPE	RECORDS READ	PERCENT OF TOTAL	AVG. RECORD LENGTH	MIN. RECORD LENGTH	MAX. RECORD LENGTH	RECORDS WRITTEN
2	28	.00 %	18.00	18	18	29
3	28	.00 %	18.00	18	18	29
4	11,551	.19 %	329.73	215	2,279	11,551
5	2,205	.04 %	150.86	145	153	2,205
14	67,008	1.09 %	347.63	318	634	67,008
15	30,939	.50 %	337.34	318	354	30,939
17	12,462	.20 %	100.00	100	100	12,462
18	633	.01 %	144.00	144	144	633
20	2,367	.04 %	96.85	91	99	2,367
21	1,130	.02 %	88.00	88	88	1,130
23	24	.00 %	134.00	134	134	24
26	653	.01 %	444.34	439	450	653
30	46,409	.75 %	2,148.13	398	32,744	46,409
32	497	.01 %	255.77	224	344	497
33	1,122	.02 %	337.60	287	355	1,122
34	118	.00 %	653.98	215	967	118
35	118	.00 %	151.00	151	151	118
41	98	.00 %	367.38	146	372	98
42	109,829	1.78 %	748.78	176	32,748	109,829
57	6	.00 %	116.00	116	116	6
60	86,275	1.40 %	514.43	322	1,271	86,275
61	23,494	.38 %	1,397.09	278	23,346	23,494
62	11,976	.19 %	188.00	188	188	11,976
64	52,123	.85 %	458.00	458	458	52,123
65	12,558	.20 %	1,955.10	282	21,120	12,558
66	4,619	.08 %	831.27	289	2,497	4,619
70	96	.00 %	2,220.00	2,220	2,220	96
71	96	.00 %	1,704.00	1,704	1,704	96
72	5,184	.08 %	1,302.07	1,076	11,244	5,184
73	96	.00 %	19,704.00	19,704	19,704	96
74	2,976	.05 %	24,600.39	364	32,720	2,976
75	768	.01 %	264.00	264	264	768
77	96	.00 %	2,996.66	800	6,400	96
78	192	.00 %	4,812.00	1,888	7,736	192
80	329,517	5.35 %	218.46	180	612	329,517
88	1,152	.02 %	234.50	161	308	1,152
89	217	.00 %	2,602.07	374	4,506	217
90	28	.00 %	164.00	164	164	28
94	24	.00 %	348.00	348	348	24
100	576	.01 %	1,994.66	350	4,354	576
101	3,412,088	55.43 %	1,920.31	1,086	2,550	3,412,088
102	3,895	.06 %	1,996.87	166	2,566	3,895
115	388	.01 %	3,616.00	512	6,720	388
116	529,335	8.60 %	436.00	436	436	529,335
118	11,701	.19 %	94.06	94	228	11,701
130	17	.00 %	308.29	278	346	17
197	763,446	12.40 %	149.30	60	198	763,446
198	292,688	4.75 %	393.99	204	2,648	292,688
199	507	.01 %	501.90	495	719	507
200	1,106	.02 %	2,475.78	168	4,084	1,106
201	79	.00 %	1,036.00	1,036	1,036	79
202	791	.01 %	311.96	300	312	791
208	2,591	.04 %	695.70	657	1,235	2,591
244	297,806	4.84 %	302.83	136	2,008	297,806
248	20,411	.33 %	798.78	183	1,659	20,411
TOTAL	6,156,137	100 %	1,242.01	18	32,748	6,156,139

**Figure 2 – MXG BUILDpdb Report**

MERRILLS GUIDE TO COMPUTER PERFORMANCE EVALUATION – BUILDpdb  
 SMF/RMF RECORD COUNTS ENCOUNTERED IN THE INPUT SMF FILE 00:42 MONDAY, MAY 5, 2008

THE FREQ PROCEDURE  
 TABLE OF ID BY SYSTEM  
 ID(SMF\*RECORD\*ID) SYSTEM(SYSTEM\*ID)

FREQUENCY  PERCENT  ROW PCT  COL PCT	SYSA	SYSB	SYSC	SYSD	SYSE	SYSF	SYSG		TOTAL
2	8	22	15	8	19	25	9		174
	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
	4.60	12.64	8.62	4.60	10.92	14.37	5.17		
	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
3	8	22	15	8	19	25	9		174
	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
	4.60	12.64	8.62	4.60	10.92	14.37	5.17		
	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
6	0	0	18	0	0	3	0		21
	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
	0.00	0.00	85.71	0.00	0.00	14.29	0.00		
	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
14	54109	31765	149237	42710	8733	126686	71798		627792
	0.56	0.33	1.55	0.44	0.09	1.32	0.75		6.52
	8.62	5.06	23.77	6.80	1.39	20.18	11.44		
	22.83	3.63	14.31	24.21	0.92	3.54	20.49		

**Figure 3 – MXG VMXGETM Report**

SMF DATA SUMMARY BY TYPE/SUBTYPE 11:35 TUESDAY, JANUARY 13, 2009 1

SMF ID	SUBTYPE	PRDI		PRDM		PRDS		TOTAL	
		RECORDS	BYTES	RECORDS	BYTES	RECORDS	BYTES	RECORDS	BYTES
70	1	41	523K	46	522K	28	297K	115	1343K
	2	41	15K	46	7K	28	4K	115	27K
71	1	41	69K	46	78K	28	47K	115	196K
72	3	3731	4633K	2714	3287K	1540	1840K	7985	9761K
	4	41	611K	46	686K	28	417K	115	1715K
73	1	41	788K	46	884K	28	538K	115	2212K
74	1	2009	61M	2254	69M	1372	42M	5635	172M
	2	82	1643K	92	1837K	56	1114K	230	4595K
	3	41	18K	46	20K	28	12K	115	50K
	4	82	571K	92	641K	56	386K	230	1599K
	5	6601	74M	7406	83M	4508	50M	18515	207M
	6	41	14K	46	16K	28	9K	115	40K
75	1	2050	520K	920	233K	392	99K	3362	853K
78	2	41	75K	46	84K	28	51K	115	211K
	3	123	2906K	138	3261K	84	1985K	345	8153K
ALL		15006	147M	13984	163M	8232	99M	37222	410M

**Figure 4 – SMF Subtype SASList**

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SMF STATISTICS - 5-MINUTE INTVL
SYSTEM=SYPR DATE=11JAN2009

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ID_SUBTYPE	SMFINTVL	RECCOUNT	MINSMFRECLN	AVGSMFRECLN	MAXSMFRECLN
42_6	1:00	233	280	317	544
42_6	1:05	3199	280	324	1704
42_6	1:10	4026	280	646	32744
42_6	1:15	6102	280	331	1664
42_6	1:20	3893	280	332	1544
42_6	1:25	4526	280	591	32744
42_6	1:30	3576	280	332	1368
42_6	1:35	3627	280	331	1368
42_6	1:40	3267	280	659	32744
42_6	1:45	2169	280	333	2304
42_6	1:50	1898	280	326	1664

**Figure 5 - MXG SMF ID Record Count Analysis Hourly**

