

SMF Logging of FTP Activity

The OS/390 and z/OS FTP servers have the ability to log FTP client and server activity in SMF records. Logging of FTP activity in SMF, however, is an option that must be enabled. It is not enabled by default.

SMF FTP Record Types

FTP activity can be logged in SMF type 118 records (older format) and/or in SMF type 119 records (newer format). Type 119 records overcome some problems with type 118 records, are better structured and will be maintained and enhanced by IBM in future z/OS releases. Either or both SMF record types (118 and 119) can be logged.

Are we Logging FTP Activity?

There are two ways to determine whether SMF logging of FTP activity is enabled in your installation.

1. Review the settings in the FTP Server and TCP/IP startup parameters datasets. Refer to the sections entitled *Enabling SMF Logging of 118 Record Types* and *Enabling SMF Logging of 119 Record Types* below for instructions about what to look for.
2. Run an SMF utility job and look at the report that it generates. Instructions for doing this and interpreting the results follow.

Running an SMF Utility Job

JCL for running an SMF utility is shown below:

Specify the fully qualified dataset name of a dataset containing SMF data on the INDD1 statement.

The OUTDD statement in SYSIN tells the IFASMDP utility to look only at FTP-related SMF records.

```
//...JOB CARD(S) ...
//*****
//* RUN THE SMF EXTRACT PROGRAM TO GET FTP-RELATED SMF RECORD *
//* COUNTS. *
//*****
//SMFEXTR EXEC PGM=IFASMFDP
//SYSOUT DD SYSOUT=*
//INDD1 DD DISP=SHR,
// DSN=SMF.DATASET.NAME
//OUTDD1 DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
INDD(INDD1,OPTIONS(DUMP))
OUTDD(OUTDD1,TYPE(118(3,70:75),119(3,70,72)))
```

Figure 1: SMF Utility JCL

SUMMARY ACTIVITY REPORT							
START DATE-TIME 10/31/2007-20:44:18				END DATE-TIME 11/15/2007-13:30:33			
RECORD TYPE	RECORDS READ	PERCENT OF TOTAL	AVG. RECORD LENGTH	MIN. RECORD LENGTH	MAX. RECORD LENGTH	RECORDS WRITTEN	
2	21	.01 %	18.00	18	18	1	
3	21	.01 %	18.00	18	18	1	
4	20,872	6.62 %	292.84	215	1,519	0	
14	41,520	13.17 %	352.21	318	1,038	0	
15	19,150	6.08 %	344.08	318	346	0	
16	5,425	1.72 %	774.82	576	1,160	0	
17	15,187	4.82 %	100.00	100	100	0	
30	27,008	8.57 %	1,261.76	398	32,738	0	
34	35	.01 %	1,168.60	303	1,543	0	
64	180,374	57.23 %	1,716.52	458	5,788	0	
70	44	.01 %	860.72	164	1,652	0	
71	22	.01 %	1,628.00	1,628	1,628	0	
72	638	.20 %	1,071.31	980	1,588	0	
73	22	.01 %	19,704.00	19,704	19,704	0	
74	286	.09 %	23,300.61	720	32,720	0	
75	110	.03 %	264.00	264	264	0	
78	44	.01 %	2,968.00	1,888	4,048	0	
80	1,278	.41 %	265.35	180	276	0	
89	24	.01 %	2,115.00	346	3,866	0	
110	523	.17 %	3,141.69	186	32,756	0	
119	789	.25 %	278.32	180	356	0	
255	1,789	.57 %	1,357.81	70	3,464	0	
TOTAL	315,182	100 %	1,235.72	18	32,756	2	
NUMBER OF RECORDS IN ERROR			0				

The utility generates a report similar to that shown above.

Look for entries for record types 118 and 119. Look at the **Records Written** column (the last column). Not all 118 and 119 records have to do with FTP, other TCP/IP activity is also logged in these record types. If the Records Written counts are zero for the 118 and 119 records (as in the report shown above) or if there are no entries for record types 118 and 119, that means that there were no FTP-related records in the SMF sample you processed.

If you ran against a representative SMF sample, chances are FTP activity is not being logged and you might want to review the instructions for enabling logging below.

If you do see a non-zero count for Records Written for 118 and/or 119 records, you might still be only recording client or server FTP transactions, not both. Our FTP Audit (see end of document) can tell you for sure.

Enabling Logging in 118 Records

Enabling Logging of Client Activity

To enable client type 118 SMF records in TCPIP, include the following statement in the local FTP.DATA file; the FTP Server configuration file.

```
SMFCONFIG FTPCLIENT
```

Enabling Logging of Server Activity

To enable server type 118 SMF records in TCPIP you need to code one or more statements in the FTP.DATA file; the FTP Server configuration file. This file is read in by the FTP server during initialization. Per the IP Configuration Guide, the search order for locating this file is:

1. A data set specified by the //SYSFTPD DD of the FTP server procedure
2. *ftpserve_job_name*.FTP.DATA
3. /etc/ftp.data
4. SYS1.TCPPARMS(FTPDATA)
5. *h/q*.FTP.DATA data set

To enable server type 118 SMF records, add the following statements:

```
SMF STD ;SMF records, use standard subtypes
SMFJES ;SMF recording when filetype=jes
SMFSQL ;SMF recording when filetype=sql
```

SMFJES and SMFSQL are optional.

Enabling Logging in 119 Records

Enabling Logging of Client Activity

To enable client type 119 SMF records in TCPIP (z/OS 1.2 and above only) include the following statement in the TCPIP.PROFILE file; the TCP/IP configuration file.

```
SMFCONFIG TYPE119 FTPCLIENT
```

Enabling Logging of Server Activity

To enable server type 119 SMF records in TCPIP (z/OS 1.2 and above only) you need to code one or more statements in the FTP.DATA file; the FTP Server configuration file. This file is read in by the FTP server during initialization. Per the IP Configuration Guide, the search order for locating this file is:

1. A data set specified by the //SYSFTPDD DD of the FTP server procedure
2. *ftpserve_job_name*.FTP.DATA
3. /etc/ftp.data
4. SYS1.TCPPARMS(FTPDATA)
5. *hlq*.FTP.DATA data set

To enable server type 119 SMF records, add the following statements:

```
SMF TYPE119 ;SMF records (type 119)
SMFJES TYPE119 ;SMF recording filetype=jes
SMFSQL TYPE119 ;SMF recording filetype=sql
```

SMFJES and SMFSQL are optional.



Recycle the FTP Server

If you made any changes to the FTP Server configuration file, the FTP server will need to be recycled to incorporate the changes.

Update TCP/IP

If you change the TCP/IP Profile dataset, you will either need to restart TCP/IP or issue an OBEYFILE command to get the TCP/IP configuration altered. An OBEYFILE command causes TCP/IP to read a configuration file in the same fashion as the TCP/IP PROFILE data set is read at startup.

```
VARY TCPIP,tcpprocname,OBEYFILE,DSN=obey.file
```

Create a file with the statements you modified in the TCP/IP Profile dataset and refer to that dataset on the DSN option.

FTP Audit

Software Assist offers an FTP Audit service for IBM Mainframe and/of distributed systems FTP usage. This audit enables you to see for yourself whether your **FTP usage is compliant**. You will be able to assess who is using FTP and what they are using it for.

We have detailed instructions for gathering an SMF sample and getting it to Software Assist. For more information, contact your Software Assist representative.

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