

IBM Best Practice: Always Collect Correlator SMF Records



April 11, 2022

Daniel Rosa - dvrosa@us.ibm.com

Don Schmidt - donws@us.ibm.com

Bob Abrams - abrams@us.ibm.com

IBM Best Practice: Always Collect Correlator SMF Records for Proactive Problem Diagnosis

When a transient performance problem is impacting your system, traditional SMF data captured on the SMF interval (e.g., 15 or 30 minutes) may be insufficient to determine the underlying root cause. [IBM z/OS Workload Interaction Correlator](#) SMF records often contain valuable data for diagnosing transient performance problems; summary activities with a worst offender and its activity every 5 seconds. **IBM strongly recommends as an IBM Best Practice for customers to collect and archive all available Correlator** SMF records with your other SMF data (e.g., SMF 70s, 72s, 113s, etc.) to ensure first failure data capture for performance problems. IBM benchmarks were run with all available Correlator SMF records being captured and logged and could not detect any additional CPU cost from the increased data collection.

The [IBM z/OS Workload Interaction Navigator](#), an analytics engine, is used to analyze Correlator records. IBM recommends all customers collect Correlator records even if the customer cannot analyze them. This will allow IBM Support to request and analyze the SMF records, when appropriate, for problem diagnosis. The Correlator records are especially important to provide before and after hardware and software upgrades to help minimize the impact if any issue does arise.

Correlator SMF records contain no Sensitive Personal Information (SPI) or business information. See [Correlator SMF records](#) for frequency, size, and content specifics.

The table below lists Correlator information providers with their SMF record type and subtype, and the hardware, software, and license requirements to generate them.

Record Provider	SMF Record Type.Subtype	Min Hardware Requirements	Min Software Requirements	License Requirements
z/OS Supervisor	98.1	None	z/OS 2.2 with APAR OA55887 z/OS 2.3 with APAR OA57165 z/OS 2.4 or 2.5 with APAR OA62268	None
CICS	98.1024	z14	z/OS 2.3 with APAR OA57165 z/OS 2.4 or above with APAR OA62268 CICS 5.4 or above with APAR PH16392	Correlator ¹
IMS	98.1025	z14	z/OS 2.3, IMS 15 with APAR PH15062	Correlator ¹
Db2	100.n*	None	Db2 v12 with APAR PH18658	None

* Indicates all SMF record subtypes

¹ Indicates an IBM z/OS Workload Interaction Correlator license is required to generate this Correlator record. With [Correlator Entitlement](#), customers running z/OS 2.4 and above with a Resource Monitor Facility (RMF) license or z/OS 2.5 with an Advanced Data Gatherer (ADG) license are entitled to a Correlator license at no additional cost. Otherwise, customers must purchase a separate Correlator license to generate this Correlator record.

[Enabling Workload Interaction Correlator](#) describes how to collect Correlator data for each record provider.

IBM recommends:

1. All customers running Db2 v12, collect Db2 Correlator data by activating:

Db2 ZPARMs [STATIME MAIN=5](#) and [SMFSTAT=YES](#) (default) or [SMFSTAT=\(1,...\)](#) to include trace class 1
[SYS1.PARMLIB\(SMFPRMxx\) TYPE\(100\)](#)

2. All customers eligible for [Correlator Entitlement](#), collect the available Correlator records (e.g. Supervisor, CICS, IMS) by activating:

[SYS1.PARMLIB\(SMFPRMxx\) WIC and TYPE\(98\)](#)

Notice to customers running z/OS 2.4 and 2.3:

z/OS 2.4 and 2.3 publications suggested [HFTSINTVL\(20\)](#) and recommended [writing SMF 98 records to a separate logstream](#). That guidance is withdrawn changed in the z/OS 2.5 publications. It is recommended all customers set [HFTSINTVL\(5\)](#) and remove the recommendation for a separate logstream. The SMF 98 record rate and record size does not require a separate logstream.

3. All customers ineligible for [Correlator Entitlement](#), collect the available Correlator records (e.g. Supervisor) by activating:

[SYS1.PARMLIB\(SMFPRMxx\) HFTSINTVL\(5\) and TYPE\(98\)](#)

4. All customers collecting any Correlator records should also [Collect Hardware Instrumentation Services \(HIS\) counters as IBM recommends](#) so Supervisor Correlator records includes Cycles Per Instruction metrics.

Summary

When a transient performance problem is impacting your system, traditional SMF data captured on the SMF interval (e.g. 15 or 30 minutes) may not help determine the underlying root cause. [IBM z/OS Workload Interaction Correlator](#) records often contain valuable data for diagnosing transient performance problems; summary activities with a worst offender and its activity every 5 seconds. IBM benchmarks cannot detect any additional CPU cost from collecting all available Correlator records. **IBM strongly recommends as an IBM Best Practice for customers to collect and archive all available Correlator** SMF records with your other SMF data (e.g., SMF 70s, 72s, 113s, etc.) to ensure first failure data capture for performance problems.

The [IBM z/OS Workload Interaction Navigator](#) analyzes Correlator records. IBM recommends all customers collect Correlator SMF records, even if customers cannot analyze them. This allows IBM Support to request and analyze the records, when appropriate, for problem diagnosis. The Correlator records are especially important to provide before and after hardware and software upgrades to help minimize the impact if any issue does arise.