

Thread/SENTRY

*Detect and resolve
Db2 problem threads — automatically*



- **Embed DBA intelligence in a rule based, expert system**
- **Drastically reduce the number of problems which need to be resolved manually**
- **Cancel Db2 problem threads gracefully, safely and with minimal impact**
- **Resolve Db2 problems fast, before users start calling the help desk**
- **Control threads better than RLF or the QMF governor**
- **Halt runaway queries**
- **Detect idle threads and release their resources**

Overview

Thread/SENTRY provides a rule based, expert system to deal with the inevitable operational mistakes, network failures, application errors and runaway queries that create 'problem' Db2 threads.

Thread/SENTRY is intelligent enough to resolve Db2 problem threads without human intervention. It works tirelessly, around the clock, to safeguard your Db2 subsystems and their users.

Thread/SENTRY detects Db2 problem threads in real-time and takes fast, corrective action to resolve problems that threaten Db2 performance and availability.

Thread/SENTRY wakes up, at an interval you specify, to monitor Db2 thread and lock activity. It acts like a skilled operator, DBA or systems programmer — using the rules *you* establish to evaluate information and make decisions. You can *predefine* Db2 'problem' threads in terms of threshold measurements such as CPU time, idleness or number of SQL statements executed.

Thread/SENTRY will issue a warning or cancel the thread when it detects a violation.

Thread/SENTRY acts quickly and automatically, *before* your system is impacted and large numbers of users are disrupted.

Benefits

- Promote 24 x 7 operation
- Reduce the load on skilled personnel
- Regulate multiple Db2 subsystems on the same z/OS image or within a Data Sharing Group simultaneously — even subsystems at different Db2 release levels
- Minimize downtime and maintain service levels
- Improve operational control of the Db2 environment based on rules and thresholds you set yourself
- Improve availability of critical systems and data

Features

- Supports all *local* and *distributed* threads including CICS and IMS transactions, remote connections, TSO and QMF sessions, batch applications and Db2 utilities

Features (continued)

- Lets you rehearse actions in 'warn' mode without cancelling anything
- Enforces thresholds for parallel threads as the sum of the originating thread and all the parallel threads it coordinates
- Maintains a complete audit trail of thread violations and corrective actions — in a standard Db2 table
- Gracefully cancels TSO Attach threads without causing 04E/00C50109 abends
- Cancels Db2 editors without placing the TSO session in a wait state
- Quiesces Db2 batch jobs as the active log runs out of space
- Lets you specify lists of administrative users to be notified when warnings are issued or threads are canceled

Rule Definition

You predefine Db2 'problem' threads in terms of such threshold measurements as idleness, CPU time and the number of SQL statements executed. The rule syntax defines over 100 constraints which Thread/SENTRY can enforce automatically, on a logical AND or OR basis.

You can restrict when Thread/SENTRY should apply these rules — or define different rules for prime time and off hours. You can also restrict the rule to apply only to threads which meet criteria such as correlation ID, connection name and plan name. These criteria support the SQL wild card characters (% and underscore) for pattern matching purposes. For example, you can direct Thread/SENTRY to cancel any CICS thread that issues more than five thousand SQL FETCH statements through a LIMIT rule like the following:

```
limit
  connection(CICS%)
  max_fetch(5000)
  action(cancel)
```

Thread Cancellation

Although IBM improves the Db2 CANCEL command with each release, cases remain where CANCEL doesn't work:

- The CANCEL THREAD and CANCEL DDF THREAD commands have no effect unless a thread is processing in Db2. Threads executing within an application or suspended in VTAM or TCP/IP don't terminate.
- The Db2 and QMF governors only limit *individual* instances of *dynamic* SQL statements. The governors have no effect on looping programs or applications that issue static SQL.
- Db2 "marks" an inactive database access thread (DBAT) as cancelled, but cancellation is actually deferred until the thread becomes active again. Thread/STOPPER can DROP the communication connections which underlie the thread to terminate the thread right away.

When threads fail to respond to normal Db2 cancellation processing, Thread/SERIES can issue Db2, z/OS, TCP/IP, SNA/VTAM, IMS and/or CICS commands — separately or in combination — to escalate cancellation and terminate the thread.

Prerequisites

Thread/SENTRY is an authorized program that runs with all releases of z/OS and Db2 for z/OS whose IBM support status is current.

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**Identify and correct
Db2 problem threads
— automatically**

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