

Product Brief

Smart/RESTART

Key Benefits

- **Improved z/OS concurrency and availability:** Reduce the time required to recover from failures by eliminating the need for applications to back out and redo successfully processed work.
- **Restart made simple:** Enable checkpoint and restart capability for a wide variety of z/OS applications and resources without complicated restart logic or cumbersome operational procedures.
- **Db2 batch simplified:** Improve Db2 batch application performance, accounting, and problem determination by running them under Smart/RESTART—regardless of the language the application is written in, or the attach being used.

Key Features

- **Checkpoint restart for z/OS applications:** Easily endow both new and existing z/OS batch applications with restart capability.
- **Multi-resource support:** Keep application storage, sequential file position, Db2 cursor position, and random updates to VSAM data consistent and in-sync with Db2, MQ, IMS, VSAM, and other RRS compliant resources to ensure data consistency and integrity and reliable application restart.
- **Sysplex ready:** Failed applications can be restarted on other LPARs within a Sysplex boundary.

At a Glance

Many organizations need to run operations 24 hours a day, 7 days a week, 365 days a year. In response to this need, Smart/RESTART provides robust, reliable, and efficient checkpoint and restart capability. This capability is essential for mission-critical z/OS batch workloads in today's shared data environments. It allows restart enabled applications to resume execution near the point of failure, rather than from the beginning, and with all resources in a consistent state—regardless of the nature of the failure.

Business Challenges

Checkpoint and restart capability is a prerequisite for concurrency in shared data environments. Backing out batch updates would destroy changes applied by other, concurrently active processes that simultaneously access and update the same shared data. Smart checkpointing provided by Smart/RESTART shortens failure recovery time by releasing locks and eliminating the need to restore RRS compliant data resources to their initial state. This means that updates to shared data made by concurrent processes are not lost.

Solution Overview

Smart/RESTART improves the availability of shared data resources and helps maintain tight batch window SLAs by limiting the time required to recover from failures, recompiles, and even system IPLs. Smart/RESTART enables z/OS batch applications to resume execution from the last successful checkpoint, rather than requiring the job to be rerun from the beginning. Smart/RESTART extends the scope of a unit of work. It guarantees that changes to Db2, MQ, IMS, VSAM, and other RRS compliant resources remain consistent and in sync across failures. Smart/RESTART shortens failure recovery times by ensuring that successfully processed and committed work is never discarded or redone.

Smart/RESTART provides the following features:

- **Checkpoint restart for z/OS batch applications:** Smart/RESTART makes it as easy as possible to enable both new and existing z/OS batch applications with restart capability. It improves concurrency and availability by eliminating the need to back out and redo successfully processed work.
- **Multi-resource support:** Update Db2, MQ, IMS, VSAM, and other RRS compliant resources in the same application. Eliminate the need to develop restart logic separately for each application.
- **Dynamic adjustment:** Commit frequency and interval can be adjusted dynamically, without changing the application.

Solution Overview (cont.)

- **Total batch recovery solution:** Smart/RESTART fully supports large-format datasets, transparent dataset encryption and compression, SMS compressed and extended format datasets, and interoperates with DFSMS Advanced Copy Services like XRC, PPRC, and FlashCopy.
- **Hybrid application support:** Smart/RESTART enables checkpoint and restart for z/OS batch applications implemented as any combination of COBOL, PL/I, ASSEMBLER, C, and C++ modules. Compile and runtime libraries can be mixed without restriction for all COBOL, PL/I, and LE release levels.
- **Support for legacy applications:** Restart-enable applications that take no checkpoints by defining the unit of work based on criteria like Db2 column values, record content, I/O counts, and SQL accesses.
- **Db2 batch simplified:** As an alternative to using the TSO Terminal Monitor Program and DSN/RUN commands, Smart/RESTART enables Db2 batch applications to use regular JCL so they look and behave like regular OS jobs. This process produces more accurate job-step completion codes and permits more granular SMF job accounting.
- **Db2 data sharing support:** Smart/RESTART exploits WLM and Db2 data sharing facilities. A jobstep running under Smart/RESTART control can begin execution on one member of a Db2 data sharing group and one LPAR, and restart on another member of the same Db2 data sharing group and another LPAR within the Sysplex.
- **Easy problem determination:** Restart enablement with Smart/RESTART is transparent and efficient and supports familiar debugging tools such as InterTest™ Batch.
- **Rapid error correction:** Allows failing applications to be corrected and re-prepared, and then restarted from the last successful checkpoint.

Critical Differentiators

Smart/RESTART provides an extensive set of features:

- **Simple:** Make both new and existing applications restartable without complicated restart logic or cumbersome operational procedures. Simply define the logical unit of work and Smart/RESTART does the rest. Many applications that implement a loop for a unit of work do not require source changes.
- **Flexible:** Restart from the last checkpoint near the point of failure, restart automatically after deadlocks and timeouts, suspend the processing of one or more applications at points of consistency and resume them on command, and gracefully cancel active jobs at unit-of-work boundaries.
- **Efficient:** Overhead is very low because Smart/RESTART checkpointing is extremely efficient. Its repositionable sequential access methods parallel I/O significantly outperforms QSAM.

Related Products

InterTest™ Batch

For more information, please visit:

www.broadcom.com/products/mainframe/product-portfolio/smart-restart