

APPLICATION RESTART CONTROL (AR/CTL)



This package consists of:

- > AR/CTL for DB2
- > AR/CTL for IMS
- > AR/CTL for VSAM

Key features

- > Restarts applications across DB2, IMS and VSAM
- > Automates the batch processing cycle
- > Repositions sequential files, DB2 cursors, and VSAM files at restart
- > Requires no JCL or application program changes in most cases
- > Provides checkpoint frequency control – outside the application

Product synergy

- > BATCH CONTROL FACILITY
- > CONCURRENT REORG for IMS
- > REORG Plus for DB2 Online Feature
- > RECOVERY MANAGER for IMS

OVERVIEW

Whether your applications access data in DB2, IMS, QSAM, or VSAM—or all four—the APPLICATION RESTART CONTROL (AR/CTL) products from BMC Software give you faster restarts, improved integrity, automated restart capability, and batch processing across all platforms.

BEATING BATCH WINDOW CONSTRAINTS

Shrinking batch windows mean you have less time to run batch jobs. Since backing out updates from a batch application can take twice as long as it did to run it, you cannot afford to back out everything and start from the beginning after a failure. Nor can you afford to restart from the wrong point, then back out those errors and start over again.

The AR/CTL products reduce the time required to restart batch applications after a failure by creating checkpoints at user-specified intervals. These checkpoints contain a copy of storage that the application was using, as well as information needed to restore file position. This allows faster restarts after a failure and eliminates wasted time and resources used to rerun a job from the start.

THE COMPLETE RESTART SOLUTION

The AR/CTL products provide speed, convenience, and data integrity while reducing downtime, shortening restart time, ensuring data integrity, and improving the overall batch environment.

Automatic checkpoint selection

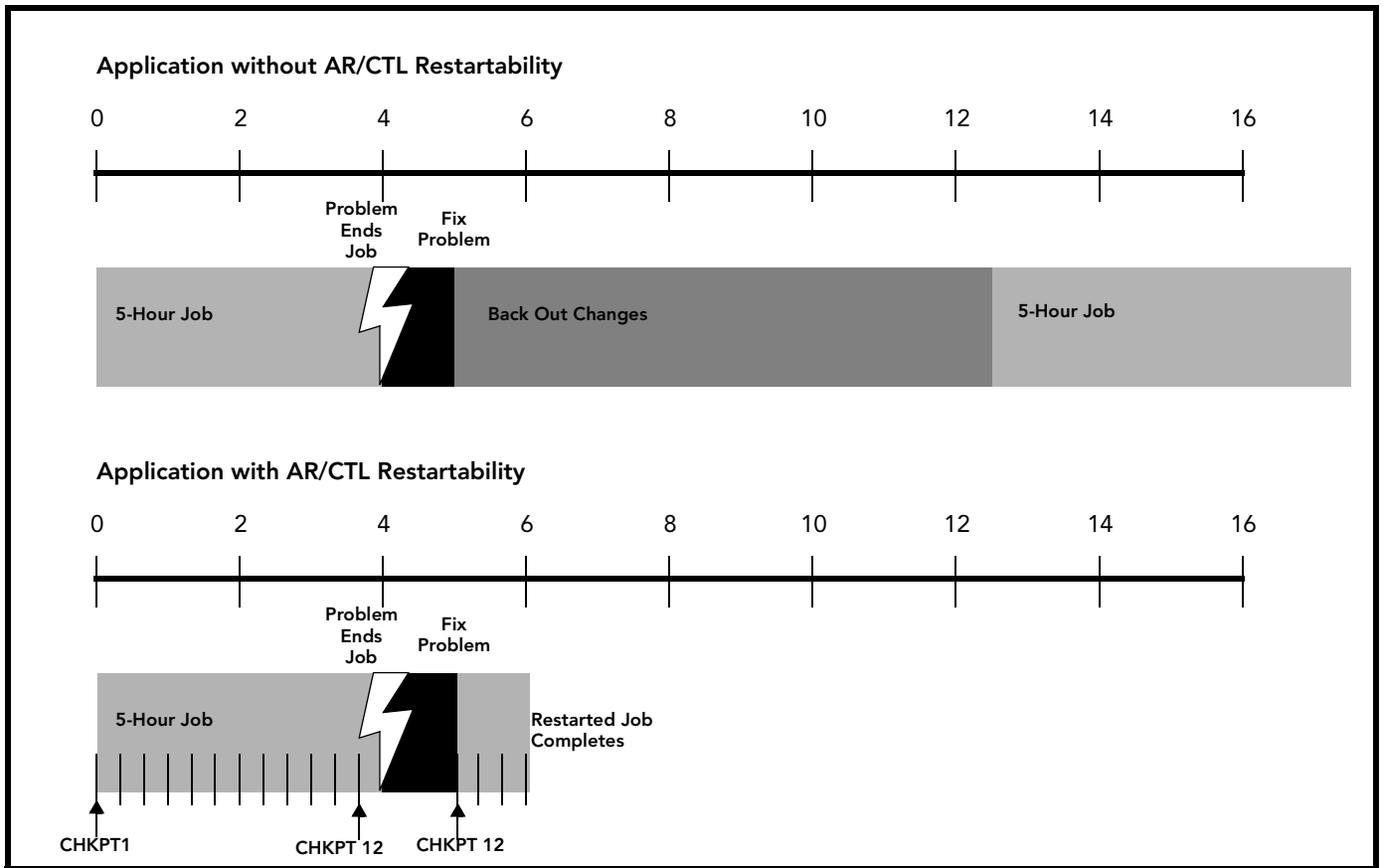
AR/CTL products ensure integrity and provide faster restarts by automatically selecting the latest valid checkpoint.

Restoring application working storage

During restart, AR/CTL can restore an application program's working storage areas in main memory. These working storage areas were saved in the checkpoint record written during checkpoint processing. Restoring the working storage areas allows the program to continue processing at the last checkpoint.

AR/CTL can also restore saved areas of virtual storage for subprograms that are executing under the main program. If an application subprogram already uses the subprogram support that is provided with the BMC Software QUICKSTART for MVS product, no program changes are required for the use of AR/CTL support for subprograms.

Whatever your restart needs, the AR/CTL products from BMC Software give you faster restarts and improved integrity across the MVS environment.



Controlling application checkpoint frequency

You can determine the best balance between performance, restart time, and checkpoint overhead by controlling checkpoint frequency outside of the application—and change it at any time.

Reattaching an application

AR/CTL products improve application performance and eliminate manual intervention by recognizing certain types of abend conditions and automatically restarting the application job step. This is particularly useful in a data sharing environment, where applications can easily lock each other out for brief periods of time.

Delivering maximum performance

AR/CTL speeds accessibility to checkpoint information. Using the most efficient access method available, data is kept in high-performance data sets, thereby reducing overhead.

Coordinating DB2, IMS, and CICS/VSAM restarts

AR/CTL products interface with each other to ensure that applications accessing DB2, IMS, and VSAM data can be restarted from the correct checkpoint.

Automatic checkpoint and automatic restart options

Based on an event you identify, such as a read operation against a specific file, AR/CTL can initiate check-point processing on behalf of the application program. After an abend, AR/CTL can identify that the program requires restart and automatically restore working storage at restart time without program changes.

QUICKSTART-to-AR/CTL bridge

AR/CTL provides an interface that allows an application coded with QUICKSTART for MVS calls to be used with AR/CTL with no program changes.

CONTROL OF THE BATCH ENVIRONMENT

In addition to their application restart capabilities, the AR/CTL products allow you to more finely control your batch processing environment.

APPLICATION RESTART CONTROL (AR/CTL)

Interfacing with other BMC Software products

AR/CTL provides suspend-and-resume interfaces for the following BMC Software products:

- > Backup and Recovery Solution for IMS
- > CONCURRENT REORG for IMS
- > IMAGE COPY PLUS
- > MAXM Reorg/Online for IMS
- > RECOVERY MANAGER for IMS
- > REORG PLUS for DB2 Online Feature

Suspend-and-resume processing allows these products to obtain a point of consistency required for reorganization or recovery. (Application programs that are not under the control of AR/CTL must be handled manually.)

Ending jobs when needed

The AR/CTL products allow you to get the most out of the available processing time by terminating applications just prior to a scheduled outage. After the outage, you can restart the applications from the last checkpoint and quickly resume processing.

DATA SERVICES

At restart, AR/CTL re-establishes application position within the QSAM files used by an application. AR/CTL for VSAM re-establishes position within VSAM files. AR/CTL for DB2 can re-establish position within DB2 cursors if desired.

VSAM file sharing

For those VSAM applications that require high availability, AR/CTL for VSAM provides file sharing capability—with data integrity—between batch applications and CICS regions.

Program exception handling

AR/CTL can intercept and attempt to handle application program exception conditions that usually result in a system 0Cx-type abend. This program exception handling may allow application processing to run to completion, allowing you to correct the problem after execution completes successfully. Options for handling the exception include skipping the input record and writing the skipped record to a file.

AUTOMATION FOR INTEGRITY

Ensuring data integrity is the primary reason for automating restarts. Manually searching for the last checkpoint is not only time-consuming but error prone. Even entering "last" to find the most current checkpoint is not foolproof. And restarting from the wrong checkpoint can result in errors, duplicate entries, omitted updates or other problems. Recovering from an inaccurate restart can be even more complex and confusing than the original problem.

AR/CTL products select the right checkpoint every time, eliminating errors and the need to restart your restart. Using AR/CTL saves time and resources, and significantly increases data availability. And if your application accesses data on multiple platforms, AR/CTL automation is indispensable in keeping all your data repositories in sync.

LANGUAGE SUPPORT

AR/CTL supports application programs written in the following programming languages:

- > COBOL
- > PL/1
- > Assembler

AR/CTL FOR DB2

AR/CTL provides DB2-oriented features.

SQL return code handling

AR/CTL can intercept a defined SQL return code received during application program processing and issue a defined user abend code and reason code. This abend code and reason code can be defined as a combination that is eligible for application reattach processing.

Cursor repositioning

As an application is being processed, it uses a subset of the DB2 table called the cursor. Any checkpoint restart solution can effectively save working storage, but only AR/CTL for DB2 can return the application to the proper position within the cursor.

This means that DB2 applications can truly be restarted with no application changes; you no longer need to add logic to your DB2 applications to track and store the cursor position for use in checkpoint restart.

This provides significant time savings for implementing new applications, and allows you to replace "home-grown" solutions for cursor repositioning with a standard, robust solution.

Batch Attachment Facility

AR/CTL performs the attachment to DB2 on behalf of the application program and replaces other methods that the program might be using for attachment. A program can be registered to use the batch attachment facility only or to use the full range of AR/CTL services.

AR/CTL FOR IMS

AR/CTL for IMS allows you to restart most IMS applications with no code changes even if you do not use the IMS extended checkpoint/restart facility and the generalized sequential access method (GSAM). This eliminates the need to change an application to call a third-party restart program and allows you to trace all IMS DL/I and Fast Path calls.

AR/CTL for IMS works with the BMC Software BATCH CONTROL FACILITY (BCF™) product to provide maximum automation for IMS batch jobs. BCF automates backout of database changes to the correct checkpoint to prepare for restart, and then AR/CTL restarts the application program at the correct checkpoint.

AR/CTL FOR VSAM

AR/CTL for VSAM provides local VSAM access services for VSAM data sets that are accessed exclusively by a batch VSAM application program. AR/CTL for VSAM dynamically intercepts the VSAM requests issued by the application program and provides repositioning support. AR/CTL can also log the VSAM changes and dynamically back out the changes made since the last completed checkpoint.

VSAM logging and dynamic backout

To perform VSAM logging and dynamic backout, AR/CTL writes log records to the VSAM dynamic backout log. Each log record contains the image of the record from the updated VSAM data set as the record existed before the update. If a failure occurs, AR/CTL uses the log records to back out or undo the changes to restore the VSAM data set to its condition at the last completed checkpoint. The data set is then ready for job step restart.

In most failure situations, backout completes before the job step terminates. In situations where AR/CTL does not receive control for termination processing, backout is performed at restart.

VSAM file sharing

AR/CTL provides support for remote VSAM file sharing between batch applications and CICS regions executing on the same or different MVS images within a SYSPLEX environment.

This sharing is accomplished by using CICS multiregion operation (MRO) to allow AR/CTL to manage the file sharing environment. In the event of an application failure, CICS performs a backout of uncommitted changes using the CICS dynamic transaction backout (DTB) capability.

Support for remote VSAM access includes full checkpoint/restart support for the remote data sets being managed by AR/CTL. After an application checkpoint or application restart, remote VSAM data set repositioning is automatically performed.

About BMC Software

BMC Software, Inc. [NYSE:BMC], is a leading provider of enterprise management solutions that empower companies to manage their IT infrastructure from a business perspective. Delivering Business Service Management, BMC Software solutions span enterprise systems, applications, databases, and service management. Founded in 1980, BMC Software has offices worldwide and fiscal 2004 revenues of more than \$1.4 billion. For more information about BMC Software, visit www.bmc.com.

LICENSING INFORMATION

AR/CTL uses tier-based licensing. To purchase all three components (IMS, DB2, VSAM) requires three licenses.

Helping You Maintain Advantage

BMC Software Professional Services helps your company maintain its competitive advantage through a comprehensive suite of services that includes service level management consulting, installation, implementation, configuration, and customization. Our professional services and education offerings are designed to ensure the ongoing availability of critical business applications, maximize product potential, reduce project risk, deliver IT value to your business, and improve your operations. For more information about BMC Software Professional Services, visit <http://www.bmc.com/profserv>.

