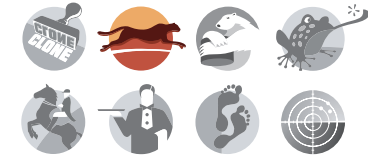


BCV5™

FAST AND EFFICIENT DB2 DATA MIGRATIONS

Corporations maintain large amounts of data in DB2 databases, and it is normal to find several DB2 subsystems for production, test and development. Refreshing testbeds from production systems is a vital part of the development, testing and quality assurance life cycle. Obtaining relevant test data requires copying from one DB2 subsystem to another. The window of opportunity for copying or migrating DB2 data is constantly decreasing as the demands from 24x7 operations are increasing. Limited resources and shrinking batch windows make data delivery to QA difficult.

BCV5 quickly and efficiently copies, refreshes and replicates DB2 objects. BCV5 copies DB2 databases or tables within the same or different DB2 systems. When measured against conventional copying methods, BCV5 saves around 90% on elapsed copy time and resources consumed (SSU, SRU). For one customer a ten-hour unload/load process was reduced to slightly over one hour. A BCV5 copy task integrates both the physical data movement and the DDL related requirements. It copies DB2 data, i.e. databases or tables with or without auxiliary objects – indexes, views, triggers, procs and runstats. BCV5 automatically handles the OBID translation and the RBA adaptation. Copy jobs are completed in minutes rather than hours. DBAs are no longer forced to wait for weekend time slots and are able to run copying jobs on regular weekday shifts. Test data on demand is a dream come true for QA, development and test staff. BCV5 offers relief where the need is greatest. It significantly cuts down runtime and cost. It reduces CPU consumption by 90%+ and shortens the preparation lead time required by the staff.



Automation Reduces Manual Effort and Keystroke Errors

BCV5 is a completely automated expert system. The integrated ISPF interface allows the copy process to be easily defined. Specifying the select/exclude patterns identifies the objects to be copied and the appropriate processing options. BCV5's powerful renames mask facility makes adhering to naming conventions during the target DB2 system a simple and error free task. A BCV5 copy process executes either under the control of the product or an in-house scheduler. Once the copy process is started there is nothing else to do. BCV5 automatically generates the DDL for the selected objects/databases using the specified target names. It executes the DDL in the target DB2 environment, tailors the respective JCL and generates the required statements for the copy utility. What if the target objects already exist? BCV5 still automates everything. It is an expert system with a comprehensive check facility that ensures that the target DB2 objects match the source objects. Structural differences are detected and successful completion of the copy process is guaranteed.

Flexible Selection of Image Copies

BCV5 permits copying directly from tablespaces or a set of image copies. Its flexible selection facility allows choosing the image copy (set) to copy from. Using the latest, a specific generation or dated image copy is easy and straight forward. It identifies the right image copy datasets and pulls them into the copy process.



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RUNSTATS Cost Time and Money

DB2's optimizer needs valid RUNSTATS data to find efficient access paths. The RUNSTATS utility is known as a long running CPU hog. BCV5 eliminates costly RUNSTATS executions. Its copy statistics feature extracts the current RUNSTATS from the source environment and loads them into the target in seconds. It is no longer necessary to wait for hours while RUNSTATS finishes running.

Why is BCV5 so fast?

BCV5 copies the data at the page level using a proprietary high performance copy utility. While the UNLOAD/LOAD process slowly extracts single rows one at a time, BCV5

copies the complete page over to the target and replaces the DB2-internal OBIDs with the respective target values. BCV5 also uses parallelism as a performance enhancement technique. It operates in a multi-thread mode and copies ten to eighteen tablespaces or tablespace partitions in parallel. This alone makes it up to ten times faster than DSN1COPY. One other performance enhancement feature involves copying indexspaces. Copying indexspaces is much faster than rebuilding them.

How can BCV5 save 90% CPU Time?

Row-wise processing consumes many more CPU cycles than VSAM copying. Clients report that only one-fifth to one-tenth of the service units used by Unload/Load are required to run BCV5. Add to these savings those resulting from avoiding index rebuilds and runstats executions.

Benefits

- Automates DB2 Cloning/Migrating/Refreshing
- Saves 90% CPU resources and run time
- Eliminates manual efforts freeing up technical staff
- Reduces overtime work and manual intervention
- Integrates seamlessly into IT environments
- Eliminates RUNSTATS, Rebuild Index, etc.
- Reduces DASD space required for direct copying

LOADs demand heavy DB2 subsystem resources. The load job's CPU consumption is reported in the job listing, but the very high service units used by DB2 is normally tallied. The immense amount of data, that corporations need to maintain, demands the use of efficient tools. It is no longer feasible to waste time and service units needlessly. There is an added bonus for users with really large tables. BCV5 does not require storage for unloaded data. BCV5 copies data directly from the source pageset to the target pageset.

Making the Copy Process Easy

A fast and efficient cloning tool is only part of the solution. The BCV5 user interface is intuitive and easily meets the needs of both experienced efficiency-minded experts and the less technical application level users. Those who prefer the PC environment can use BCV5's graphical workstation. Detailed online help is always one click away.

Who needs BCV5?

Cost savings are obviously appreciated by those who have budget responsibility. Avoiding an expensive and onerous hardware upgrade can reduce the negative impact to an IT budget. The IBM and third party software upgrade fees associated with getting a bigger machine often dwarf the hardware cost. Application development teams, QA groups, technical support staff, auditors and, of course, end users need the data to get their jobs done. BCV5 reduces the



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» *BCV5 allows us to copy much more data than we ever could have copied with our old LOAD based processes. This is great improvement for our QA environments.* «

amount of weekend and off-shift time usually required for the copy and refresh process. This allows more quality work to get completed during regular shift hours. Shops running with reduced or less experienced staff are among BCV5's most vocal supporters. Getting the job done is, after all, the true mission of IT. When data is not available, the job does not get accomplished and the whole organization pays the price.

A Quick View of BCV5

BCV5 provides fast, efficient and manageable copying of DB2 data. It automatically generates and executes jobs to:

- extract object definitions from the DB2 catalog of the source system,
- transfer the definitions to the target system, rename the objects as specified and apply them in the target DB2 system (CREATE, or DROP and CREATE),
- compare the source definitions with existing target objects for compatibility,
- copy pagesets from source to target DB2,
- make target objects ready and start them.

The product provides two user interfaces with identical functions. One is based on ISPF and the other on a workstation GUI.

To define a copy task, select and define:

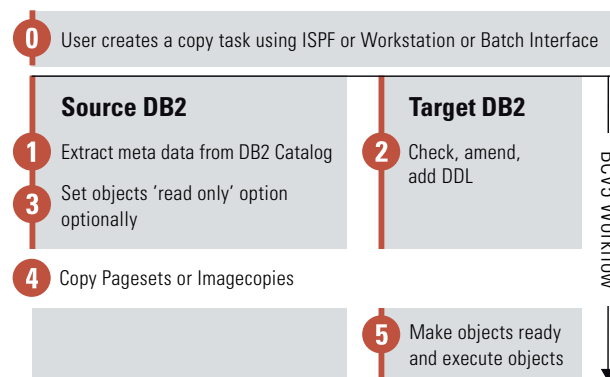
- the DB2 subsystems, source and target which are identical if copying within a single subsystem,
- the objects: databases or tables to be copied,
- the renaming rules to the copy objects,
- whether the indexes are to be copied,
- whether the related RUNSTATS should be transferred to the target system catalog,
- whether other related objects (GRANTS, BINDS, VIEWS) should also be trans-

Features

- Checks and/or generates DDL
- Automates tasks for: OBID, RBA, LRSN, Grants, etc.
- Flexible space allocation
- Offers intuitive ISPF interface for easy management
- Provides a batch interface to create large numbers of copies
- Offers optional components for data reduction, data masking, and DDL structure analysis



ferred, • whether the source objects should be put in "read only" mode during the copy, • whether BCV5 should be used to avoid impacting the source objects. Once a task is defined it may be executed at any time under BCV5's control or under the shop's scheduler or manually on a stage by stage basis.



BCV5 – Task Definition and Execution



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» With BCV5 we have been able to reduce our batch processing cycle by 2 1/2 hours and are meeting our SLA commitment for the reporting database for the first time ever. «

Optional Components

IF – In-Flight Copy (previously also known as BCV6)

When data must come from tables that require 24x7 enterprise availability there is an issue for IT. Users need to query and update the tables without interruption and stopping the source objects is not a viable option. Without stopping the source objects, it can be very difficult to copy tables while preserving consistency between tables and indexes and between different tables. BCV5 minimizes the copy time, but cannot avoid the impact of changes made to objects while they are being copied. The good news is that DB2 stores information about all these table changes in its log. BCV5 is an automated solution that uses the information in the log to bring the copied tablespace to a consistent state.

RM – Reduction and Masking Data privacy regulations impact how test centers use production data. Providing production data for testing purposes requires that the database administrators do not copy the data directly without first masking the sensitive data fields. RM modifies sensitive data during the copy process following user specifications. RM provides a selection of masking methods and supports user algorithms making this process flexible and powerful. At the same time that sensitive data fields are being protected, RM also allows data reduction to take place. It supports using filtering criteria to select subsets from the source data. This is particularly useful for unit and regression testing where only certain data is needed from a large data source.

IB – Icebox Archive DB2 data and populate different environments. Need to provide DB2 data from last week, last month or last year? Want an automatic and



efficient procedure to recreate everything, DDL and data in record time? IB takes fast snapshots on demand or periodically, and restores the objects or databases where/when needed using names specified. Issues of compatibility or completeness no longer cause concern. BCV5 IB packages the DB2 Version x imagecopy and later restores it to any other DB2 target version required. Upgrade to a newer version of DB2 knowing that former image copies will be still available for future needs.

RC – Remote Copy Some production systems are to such an extent physically isolated that it is extremely difficult to migrate data efficiently to test systems: separate sysplex neither shared DASD nor bridging volumes with the other systems. The RC component of BCV5 makes data transfer between isolated systems an easy task. RC uses TCP/IP to transfer tablespaces, indexspaces as well as meta data from one system to another. The entire cloning process is automated, error prone manual interventions are avoided.

BI – Batch Interface BI eliminates the need for most manual procedures. It supports the efficient use of batch processing to enhance throughput. It provides a powerful definition language for using all of BCV5's features and functions in a simple and flexible way. The Batch Interface function is the best way to implement mission critical trigger processes that require integrity, reliability and performance. It is the interface to BCV5 to define and control copy tasks by your own applications.



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AA – Alter Automation Altering DB2 objects is an exhausting task, especially when changing attributes that cannot be modified with a simple DB2 ALTER command. Such cases require backing up the data of the objects, dropping these, recreating them with the respective DDL modifications, and then loading the data back into the objects. Authorizations and auxiliary objects (triggers, views, synonyms, etc.) of these objects also need to be backed up and restored. This complex procedure often proves to be a major challenge for performance sensitive production and test environments. AA automates the alter process and implements the most effective and efficient solution available. It applies structural changes while safeguarding the integrity of the original data.

SC – Structure Compare Enhanced production applications often require modifying the existing database to support the new functionality. Using production data to populate an altered DB2 test database demands extra work from the database administrators. SC uses an expert system engine to generate a report identifying all source/target discrepancies. It uses the AA feature to automate the alter process and make manual intervention obsolete. The reduction in cost and time to accomplish this task is considerable according to customer feedback.

» The copy speed of BCV5 is very impressive, it rivals hardware assisted copy mechanisms. «



The DB2 High-End Product Line:

BCV4™

Full DB2 Subsystem Clones in minutes versus days

BCV5™

Save 90% CPU & Run Time with each DB2 copy

BPA4DB2™

Premier advisor for DB2 buffer pool optimization

ULT4DB2™

Easily identify & restore unwanted changes of DB2 data

TUC4DB2™

RTS & Policy driven automation of DB2 data maintenance

XM4DB2™

Pro-active surveillance for a greater DB2 availability

Contact Us For More Information

We offer a free 30-day trial evaluation as well as a private web demo. Learn more about BCV5 and our complete line of DB2 z/OS products at: www.ubs-hainer.com

For more information please send an email to:

info@ubs-hainer.com

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