



# ICR

Quickly provide access to cloned data.

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Clone and Rename for IMS (ICR) provides greater data access by simplifying and automating the process of cloning entire IMS® subsystems.

- ▶ Significantly reduce downtime
- ▶ Simplify IMS system and database copies
- ▶ Reduce costs through automation
- ▶ Improve productivity
- ▶ Increase data availability
- ▶ Support business resiliency initiatives
- ▶ Clone entire IMS subsystems or select databases quickly and easily

Many applications have critical requirements for quick and accurate cloning of entire IMS® subsystems or select databases, due to the need for production or development copies, recovery initiatives, query-only access, reporting, or testing. Using current techniques, data cloning can require the better part of a day. With the ever-increasing demands for usable clones, you need an easy, automated data cloning process with minimal downtime.

## Simplify the Cloning Process

Every hardware vendor and some software vendors use fast copy products to replicate data. However, the challenge of accessing the replicated data persists. To produce a usable clone on the same or shared image can be a manual and cumbersome process. As the demand for usable clones continues to escalate, the roles of IMS Database Administrators (DBAs) and Storage Administrators are becoming more complicated. With ICR™, you can provide access to cloned data quickly.

# Quickly provide access to cloned data.

## The Data Access Dilemma

You make replicas, but how can you easily access and use the cloned data?

While fast copy tools can create replicas very quickly, the process does pose challenges:

- If the source volume label is retained, the target volume is varied offline by the system, making the data unusable for any online requirements.
- If the target volume label is retained, the target volume stays online. Because the data set names are replicas of the source data set names and are already cataloged, the data set names must be changed.
- Internal data, such as VTOC, VTOCIX, and VVDS, are replicas of the source volume names, and must be renamed before use.
- IMS control data sets reflect the source data set names, so unless the IMS control data sets are updated, the cloned IMS system will not be able to access the target data sets.

So, how do you access the data?

## The Solution

ICR automates the manual tasks associated with cloning IMS subsystems and select databases by renaming the data sets, volumes, volume internals and IMS internals, providing access automatically, and eliminating the need for a separate image.

Because the ICR processes are extremely fast, your replicated data is available in the shortest amount of time possible.

## Refresh IMS Subsystems and Databases in Minutes

ICR can refresh IMS subsystems and databases in minutes through the use of fast copy tools and automation. ICR utilizes fast copy technology to minimize the time IMS is offline. Therefore, an IMS clone can be created within minutes.

## Automate the Cloning Process Fast Copy Automation

When you're using IBM® FlashCopy® or StorageTek™ SnapShot, ICR initiates volume copies by executing DFSMSdss™. ICR automatically pairs the volumes by manufacturer-specific requirements, SMS and

non-SMS status, and by device size to eliminate failures.

When you're using any other fast copy technology, ICR takes over the data cloning process after the copy has been created. Optionally, ICR can re-label the target volumes and vary them online.

## Updating cloned IMS to reflect new names

Whether you've cloned an entire IMS subsystem and associated data bases, or just select databases, IMS Clone and rename automates the changes that need to occur on the target IMS to enable the use of the data you've just cloned.

When cloning an IMS subsystem, the RECONS, Dynamic Allocation library (MDA) and Proclib members are updated. When cloning select databases, the recovery information for the cloned databases is updated, automating the entire process.

## Maintain Data Integrity

### Catalog Integrity to Ensure Rename Success

Some of the data required to rename data sets, such as PATH entries and GDG base records, only exist in the ICF catalog, making it imperative to capture the information from the point in time the replica is made. ICR creates backups of the source ICF catalog that reflect the status of the source volume data sets at the time the point-in-time (PIT) copy was created. Alternatively, you can read the source ICF catalogs off of the target volumes if they were also included in the point-in-time copy.

When the source ICF catalogs are backed up, ICR uses the lightning-fast catalog backup logic developed in Mainstar's Catalog RecoveryPlus™ (CR+™).

### Integrity Checks to Eliminate Orphaned Data Sets

When copying volumes, you don't want to miss pieces of multi-volume data sets, VSAM spheres, active generation data sets, or data set name aliases. If not copied, these become orphaned data sets that can not be used. ICR provides integrity checking to ensure data integrity.

## Easy to Use

### *Specify Volumes by Volume Mask or SMS Storage Group*

If you have data that spans volumes, ensure that all related volumes are processed together. This guarantees that all necessary pieces of data are copied, and prevents data from being orphaned. When using FlashCopy or SnapShot, volumes can be specified by volser, volser masks, SMS storage groups, or any combination to minimize setup errors.

### *Rename More than Just the High-Level Qualifier*

Target volume data sets are renamed based on the RENAME masks specified.

- ▶ Include changes to one or more qualifiers of a data set name.
- ▶ Introduce or eliminate entire qualifiers.

A SAFE option allows the RENAME step to be rerun if rename masks are incorrectly specified, without losing the Point-in-time copy.

### *Remove Catalog Entries from Previous Clones*

ICR can catalog target volume data sets to either a populated ICF catalog or an ICF catalog that is initially empty except for the ALIASes for the renamed target data sets. ICR provides support to clean out any data set entries from a previous cloning execution.

If each copy process is repetitive, each cycle of the process is likely to leave orphaned data sets. Orphaned data sets are created when a catalog entry exists for a data set that does not exist. These orphans are data sets (copied from a previous execution) that exist in the target ICF catalogs, but are not presently on the source volumes, and therefore will not be copied, leaving catalog entries without associated data sets.

ICR identifies all data sets cataloged in the previous run and cleans out everything written to the ICF catalog on the previous run, leaving all other catalog entries intact.

## Extensive DFSMS Class Assignments for Enhanced Flexibility

ICR provides extensive DFSMS class assignments for target data sets selected during the cloning process. SMS class information can be specified to:

- ▶ Accept the SMS values copied from the data set names of the source volume.
- ▶ Assign specific data classes, management classes, or storage classes.
- ▶ Re-enter SMS ACS routines.

## Validate through Simulation

The ICR simulate feature performs all of the normal cloning functions, except the actual initiation of copies or the updating of any IMS data sets. ICR will:

- ▶ Verify syntax, match source to target volumes, and display DSS COPY FULL commands if using FlashCopy or SnapShot, without initiating the copy operations.
- ▶ Perform masking comparisons to both ICF catalog and volume records to detect any potential problems such as:
  - Incomplete VSAM spheres renames
  - Multi-volume data sets not wholly contained in the volume list
  - Catalog entries that match a mask and have one or more volumes that were not 'copied', etc.
- ▶ Detect database data sets on volumes that were not included in the copy process.
- ▶ Optionally detect any data sets needed for recovery that were not included in the copy process.
- ▶ Verify that the required IMS control information is available for the databases being copied.

## Find Out More

Visit [www.mainstar.com](http://www.mainstar.com) for technical articles and additional information on how VCR and Mainstar's other innovative data access solutions can help you. To arrange a personal briefing or a free trial, contact us at [product\\_info@mainstar.com](mailto:product_info@mainstar.com).

### *Product Specifications*

Operating System Environment: MVS OS/390®  
Version 2 Release 8 or higher, or any z/OS version.

Feature	What It Does	Benefit
Automatic pairing	Provides automatic pairing of volume characteristics.	Increase productivity through automation.
Flexible cloning options	Allows FlashCopy or SnapShot by volser masks, entire storage groups, or any combination to eliminate the requirement for individual volume specification.	Simplify cloning management.
Validity checking	Automatically validates the integrity of the data before it's cloned so that all required data is encompassed.	Reduce the risk of error.
Rename volume conflicts	Quickly fixes volume conflicts so you can use data from the same LPAR.	Improve data access.
Extended rename capability	Renames the target data sets and allows you change, add, or delete any qualifier.	Tailor data cloning to meet the unique needs of your environment.
Extensive SMS options	Enables you to determine how the SMS class constructs will be applied to your cloned data sets to ensure they are managed correctly.	Facilitate data management.
IMS cloning support	Helps you clone IMS subsystems or databases in minutes— without requiring a separate image.	Significantly reduce the cost of IMS cloning.
IMS data sharing support	Supports either IMS data sharing or from data sharing to non-data sharing.	Clone IMS data, regardless of data sharing status.
IMS internals support	Updates the appropriate target IMS control data sets eliminating the need for a lengthy, manual cloning process.	Improve productivity.