

IBM[®] CICS[®] VSAM Recovery for z/OS[®] V4.3

More information at: <http://www.ibm.com/software/hcp/cics/vr/>

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Overview

CICS VSAM Recovery (CICS VR) is an automated recovery product. With CICS VR you can recover lost or physically damaged VSAM data sets.

CICS VR can provide recovery for VSAM data sets that are updated by CICS applications (Figure 1.) In addition, CICS VR can also provide recovery for VSAM data sets that are updated by batch applications using *batch logging* (Figure 2). CICS VR can provide forward recovery (Figure 3) and backout.

Updates to VSAM data sets are recorded on an MVS system logger log stream. The writes to the log stream are done by CICS and the CICS VR batch logger. These writes are referred to as *after-images* or *redo records*, if made by redo logging, and as *before-images* or *undo records*, if created by undo logging.

CICS VR can then use these records to perform forward recovery or backout if your VSAM data sets are lost or corrupted.

CICS TS and CICS VR

Backup

The backup process using any backup product, for example DFSMSHsm™ or DFSMSdss™, reads the file, whether offline or using Backup While Open (BWO), to create an offline backup copy.

Logging

The CICS region is up and running with the file open and enabled, processing the file, logging all activity to the forward recovery log, undo log, or both. If the file is defined as BWO, then backups can run concurrently. Otherwise, the file is taken offline (closed in CICS) to make a backup.

Logs

The forward recovery log (which includes after images of the recoverable file), the undo log with before images, and the log of logs, are used to manage the status and activity of the file. The logs are MVS logger log streams that are updated by CICS or CICS VR batch logging and that are used as input to the recovery process by CICS VR. No changes are required to the batch job to enable CICS VR batch logging.

Note: The forward recovery log that is used for batch can be the same as that used for CICS forward recovery logging when the file is online to CICS. The undo log for batch, however, is separate from the CICS system log.

Recovery management

CICS VR is used to register and scan the log of logs, through the TSO/ISPF panels, updating the Recovery Control Data Set (RCDS) with the file status and activity.

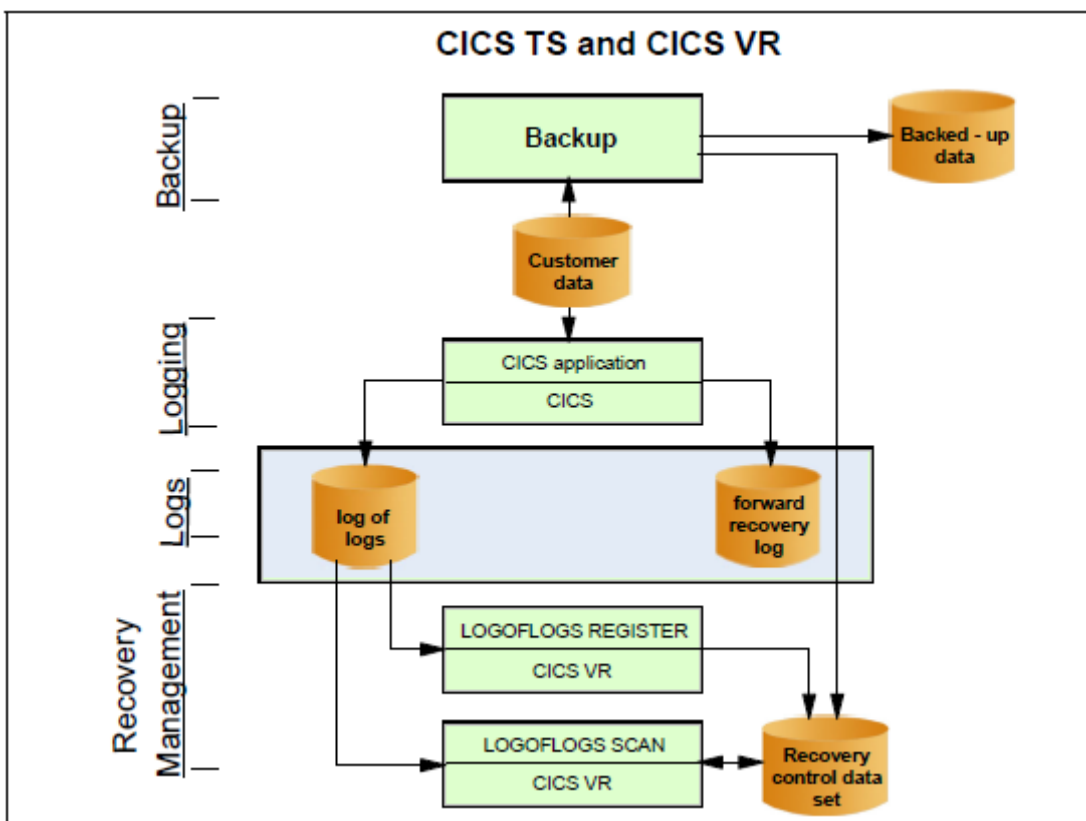


Figure 1 CICS VR V4.3 – CICS TS logging

CICS VR and Batch

Forward recovery and backout

The batch process is very much like the CICS TS process, with the CICS VR address space replacing the logging functions that CICS TS provides. The only difference is that the CICS VR address space directly updates the RCDS instead of using a log of logs.

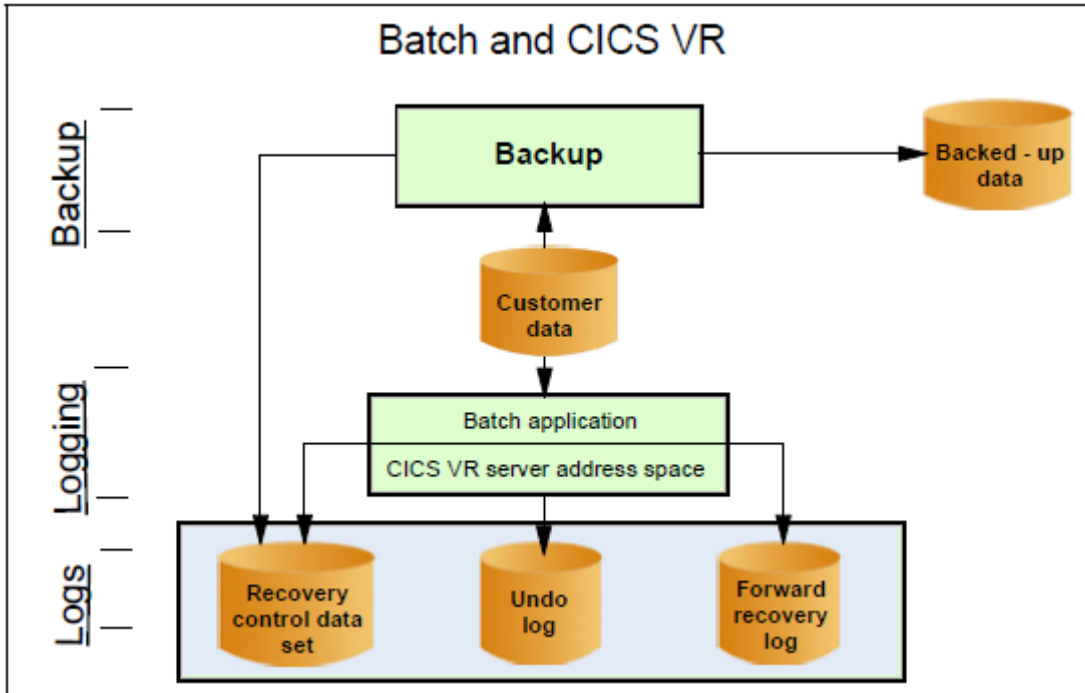


Figure 2 CICS VR V4.3 – Batch logging

Backup

The backup process, using any backup product, reads the file to create an offline backup copy. The new backup can be registered to CICS VR for the further activities that involve it.

Logging

The CICS VR address space is up and running, logging after images and before images of all file activity performed by the batch job. The CICS VR server also updates the RCDS with file activity information directly, instead of going through a log of logs.

Logs

The forward recovery log and the undo log, managed by the CICS VR address space and the RCDS that takes the place of the log of logs, is used to manage the status and activity of the file. Both logs are the MVS logger log streams and are updated by the CICS VR address space.

CICS VR and Forward Recovery

Recovery management

In the batch environment, the CICS VR address space performs all the recovery management functions automatically. The CICS VR address space updates the RCDS directly with the information that normally is pulled from the log of logs in a CICS environment through log of logs scans.

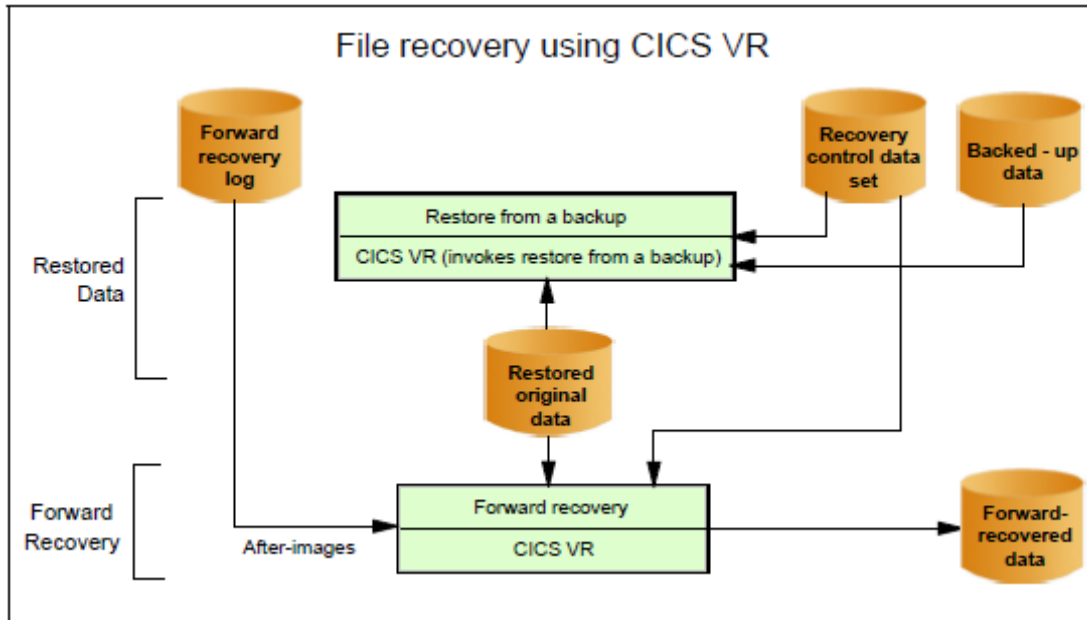


Figure 3 CICS VR V4.3 – Forward Recovery

The recovery process is completely managed by CICS VR using System Managed Storage (SMS) services and the RCDS to gather the information that is required to build your recovery job.

Restored data

The first step in the forward recovery process is to restore that data set from a backup made by DFSMSHsm, DFSMSdss, or any other backup product. CICS VR interfaces with SMS services to build the JCL that is used to recover the data set from the backup that you specify.

Forward recovery

Using the restored copy of the data set and the forward recovery logs that are created, CICS VR then performs forward recovery reading and applies logged after images to the restored copy of the file, bringing it up to the specifications that are stated in the recovery job build process.

CICS VR supports forward recovery in the following environments:

- ❖ Data set is online to CICS. CICS produces forward recovery records (after-images) that CICS VR can use if forward recovery is subsequently required.
- ❖ Data set is offline to CICS and is updated by batch. CICS VR produces after-images that CICS VR can use if forward recovery is subsequently required.
- ❖ Data set is online to CICS and is updated at the same time by batch jobs using DFSMStvs. CICS and DFSMStvs produce after-images which CICS VR can use if forward recovery is subsequently required.

Batch backout

Using the undo logs that are created by CICS VR batch undo, logging CICS VR can perform a backwards recovery, or *backout*, of all the batch updates made by a specific job or step.

Summary

Key Features

- Change accumulation
- Export and Import commands
- Batch support including logging
- NOTIFY support for IBM and non-IBM backups
- Supports backups created by Backup-While-Open (BWO)
- Automated recovery
- Invoke backup from CICS VR panel interface
- Pre-allocates the target data set prior to restore
- Provides authorization management for the panel interface
- Provides test-only forward recovery and backout
- Disaster recovery report:
- Panel Interface usability enhancements including:

CICS Support

- CICS VR works with CICS Transaction Server for z/OS, Versions 2, 3 and 4, though CICS TS V2 is no longer formally supported.

New in CICS VR V4.3

- Print and logstream copy enhancements
- Configurable Scavenger start times
- Partial Step-level backout
- Reduced Recovery Control Data Set (RCDS) contention at log copy
- Duplicate recovery avoidance
- New security authorization for batch logging and RCDS updates at notification
- Improved server configuration and installation
- Consistent timestamp display