

# Catalogic ECX: Copy Data Management for InterSystems Caché and Epic EHR

Catalog. Automate. Transform.

## ECX for Caché and Epic EHR Highlights

- Native application aware integration with InterSystems Caché and Clarity databases (SQL), VMs and file systems.
- Automate the creation and use of Caché database copies – snapshots, clones and replicas – on existing enterprise storage infrastructure.
- Leverage application aware, low-impact instant storage snapshots and native array replication without scripting.
- Easily meet Epic requirements for daily full backup via snapshots and replication, and control retention to match Epic recommendations.
- Automate Epic test and development infrastructure provisioning, reducing deployment time as much as 90%.
- Incorporate Epic freeze/thaw scripts without the need for end-user scripting.
- Control snapshot retention automatically to match Epic retention recommendations.
- Automate provisioning of clones or full copies for development, testing, release, MDR, SUP, Build, training environments
- Automatically mount clones to run database integrity checks.
- Agentless deployment model, even for physical servers, database servers, RDMs and IBM Power Systems.
- APIs allow integration with popular DevOps tools.
- Self Service portal for application DBAs and developers

The data growth explosion in electronic medical records and clinical software systems increasingly stresses healthcare IT departments who need better ways to protect, recover and securely distribute copies of Epic Electronic Health Records (EHR) data. Whether recovering from a data loss scenario or providing access to data for use cases such as software development and test, build, release, training and so on, speed and efficiency are critical. On average, an Epic enterprise makes five or six full copies of the production data to support various teams in the organization; some organizations make far more. Storage teams are struggling to meet the demands of the business and are looking for ways to address this challenge.

For this reason, Copy Data Management (CDM) is fast becoming a must-have solution for any Epic EHR environment. In an Epic EHR environment, ECX natively integrates with the EHR database hosted in InterSystems Caché as well as the Clarity reporting environments running Microsoft SQL Server without any need for scripting. ECX automates application aware storage array copy processes (snapshots, replication, clones) and allows customers to leverage their existing storage infrastructure to capture near zero-impact copies of critical healthcare data, while dramatically improving their capabilities to instantly deliver fresh copies of key databases to those functions and business units that demand them.

## The First Step: Automating the Copy Creation Process

Because of the exacting standards expected by Epic EHR environments (high I/O, need for continuous uptime, strict protection SLAs, etc.), copy creation and automation requires knowledge of the database management system and specific points of integration to ensure that the copy process has minimal impact, completes successfully, and results in application consistent copies every time.

With ECX, users create copy policies by defining key copy metrics: how often to make copies, where the copies will reside (local, remote or both), how long copies are retained and so on. Once a policy is created, it can easily be applied to any system in the Epic environment. No more complex scripting with poor error recovery or working with multiple tools; just click-and-apply ease of use. ECX natively integrates with Caché instances and Clarity databases for quiescing, while still retaining the ability to use custom scripts before and after the snapshot operations.

The ECX copy process is agentless, regardless of the type of servers (physical, virtual, RDMS, Power Systems) or applications (SQL, Oracle, Caché DB, custom apps, etc.). Rather than having to deploy and maintain agents across all Epic hosts, ECX uses a run-time code injection method that gives you the benefits of an agent – true application awareness – without the maintenance headaches. It supports InterSystems Caché running on either physical servers (AIX or Linux) or on Virtual machines (VMware or PowerVMs).

As part of application awareness, ECX queries the application environment before each snapshot to locate all required databases and journals, ensuring successful copies even if data has moved in-between snapshots, or if new databases or instances have been added.

The meta-data catalog at the core of ECX tracks all copies, making them searchable and reportable. ECX also handles the deletion of copies, ensuring that you only retain the data you really need.

## Using Data Copies: Automation and Self-Service

While copy creation is the first step in ECX, the true value shows itself in making these copies instantly accessible to application users for a variety of use cases. IT organizations spend significant staff time and effort creating, moving and delivering copies of Epic data, whether as mounted data copies or by bringing up new virtual machines. In many cases, each copy requires coordinating multiple teams, seeking layers of approvals, and then finally waiting for a slow copy process to complete. End-to-end this process can take several days (considered fast!) to several weeks (more typical). The result is often data that is stale when it arrives, with subsequent impacts to project quality and timeliness.

Imagine if you could automate the entire process, or hand it off via a user self-service portal, all while being able to deliver fresh copies of data in only minutes? With ECX you can! Application consistent copies of Epic/Caché can be automatically mapped to host servers every day (via iSCSI or Fibre Channel), ready to go when the work day begins. One can also automate changing GUIDs, DB names and mount points with just a few clicks. Ad hoc requests can also be satisfied through a pleasant interface as well as robust REST APIs.

If Epic is virtualized, ECX can spin-up the entire workload of one or more VMs, changing IP addressing and security on the fly to fit the recovery requirements (e.g. whether restoring a lost production system, or bringing up a test environment).

Self-service access means that IT can relieve itself of the daily grind of copy provisioning while still retaining ultimate control and not giving direct access to storage systems. For example, using the ECX self-service interface, a developer could spin up their own Caché copies whenever they needed them, but they would be restricted to a pre-defined set of storage volumes or VMs. This prevents abuse of infrastructure and maintains security.

The benefits of ECX copy delivery are even more pronounced when used in conjunction with all-flash storage arrays. The high I/O of these systems allows zero-footprint snapshot copies to run at production speeds, even when servicing multiple workloads from the same copy.

Self-service can also be applied to ECX reporting functions. SLA reports that validate Epic data integrity requirements can be run by anyone outside the IT organization that may be responsible for proving copy compliance.

## Data Protection and Disaster Recovery

Through its template-based management and orchestration of application-consistent Caché copies, ECX becomes a powerful solution for next generation data protection and recovery. You can skip traditional backup completely and move to a snap-and-replicate model that provides near instant protection and rapid recovery. Compared to the slow restores of traditional backup, ECX allows IT to mount and instantly access copies that are already in the production storage environment. ECX catalogs all snapshots and replicas

and alerts you if a snap or replication job was missed or failed. Disaster recovery can be fully automated and tested non-disruptively. For long term retention needs, one can easily offload tape backups to a temporary mount thereby relieving the production systems from the I/O impact.

Flexible recovery options allow Caché databases to be restored to the original location or to an alternate server, using the original database name or an alternate.

## Complete Dev-Test Automation

With ECX, data copies or virtual machines can be delivered automatically to Dev-Test teams, allowing them to work with true production data sets that contain fresh data, without any additional storage consumption. Experience shows that using fresh production data leads to fewer bugs and faster development cycles than using outdated, static or “synthetic” data sets.

When required, older data sets can also be delivered, allowing test and development teams to look back at previous data sets that may be needed for troubleshooting.

Because Catalogic uses an in-place copy model, all development work is done on the same storage stack used for production. This ensures there are no anomalies introduced into the development process, as may happen when using third party storage that is different from the production storage. Catalogic also allows for proper performance testing because it runs as an out-of-band control plane and doesn't sit in the data path between servers and storage.

When needed, Catalogic can update Caché Instance IDs, rename SQL DBs and alter File system mount points for the test/dev environments with just a few clicks.

## Dev-Ops Tool Support via APIs

All ECX features can be controlled via the ECX RESTful API. This means that ECX offers true “infrastructure as code” to agile, DevOps environments that require copies of Epic data. With a single line of code from a DevOps tool, developers can bring up Epic data copies or even full working systems (storage, networking, and compute, defined as needed). Catalogic supports popular DevOps tools such as Chef, Puppet, Ansible, vRealize Suite, IBM Bluemix, IBM UrbanCode and more. In addition, Catalogic offers pre-built scripts to help with DevOps integration, as well as plug-in tools.

## Simple Licensing

Unlike other solutions that require complex licensing based on data size, CPU cores, database instances or other metrics subject to continual change and increase, Catalogic uses a simple storage controller-based licensing system. License the storage controllers you wish to use with Catalogic copy data management, and there are no concerns about data size, number of Caché or SQL instances, etc.

## Support

### Supported versions include:

- Caché 2015, 2016, 2017
  - Microsoft SQL Server 2008, 2012, 2014 and 2016

### Supported configurations include:

#### Supported Platforms:

- RHEL 6.5+  
(Intel x86 Virtual, Physical)
- AIX 6.1+ and 7.1+  
(Power systems Little Endian)

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