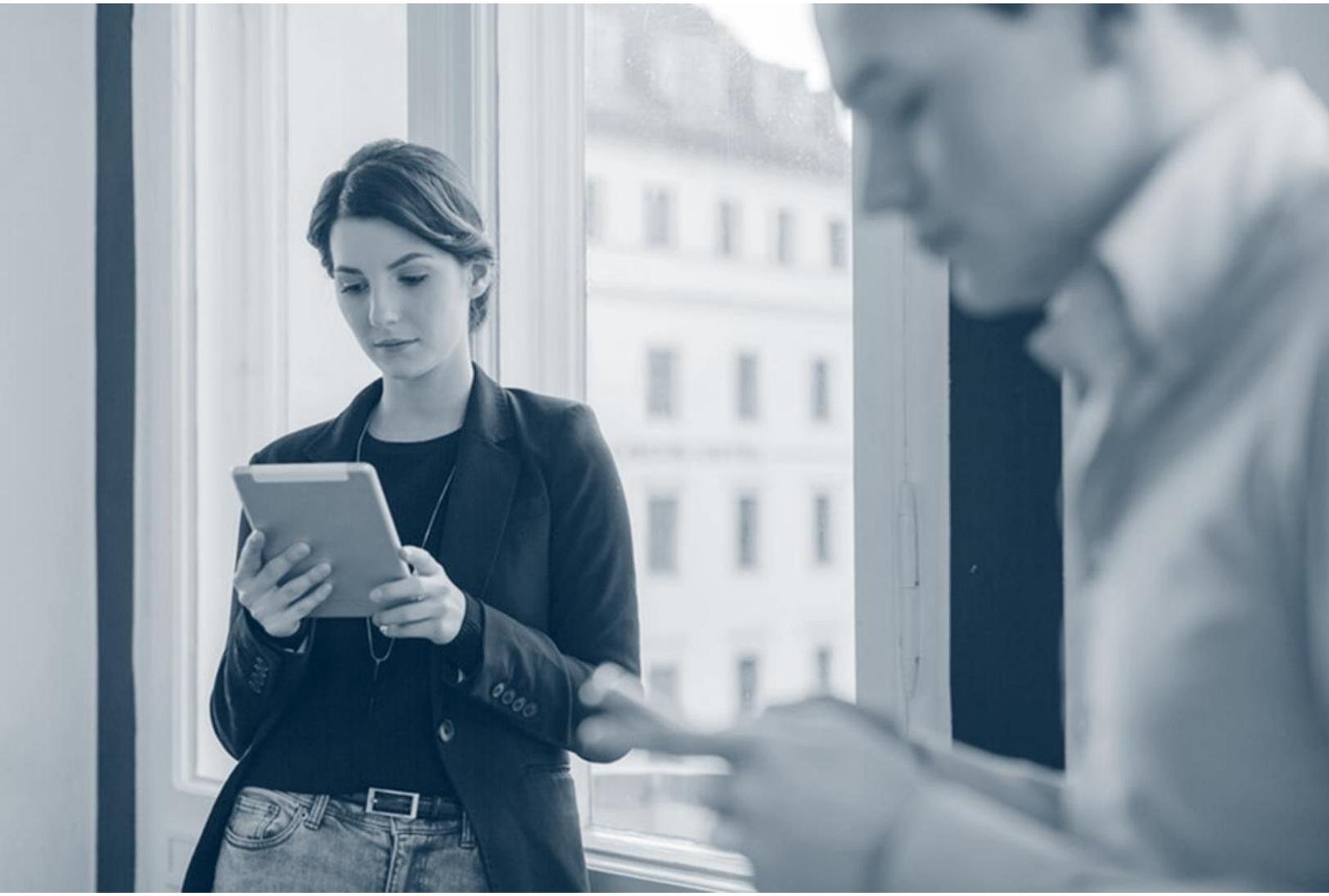




InterSystems Caché Database Support

Version 11

Thursday, September 24, 2020



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InterSystems Cache' Database Support

The scope of the solution is the physical and virtual servers that host the InterSystems Caché databases and contain volumes that can be snapped at the hardware level.

The following data must be backed up:

1. Caché database
2. Caché database journal files
3. Caché database server root volume and system state

InterSystems Caché Database on Physical Servers or RDMs Overview

If you run the InterSystems Caché database on a physical server, use the UNIX or Windows file system agent to back up the data.

- Create a client and enable it for IntelliSnap.
- Create one subclient that contains the drives for the databases.
- Create a second subclient that contains the drives for the journal files.
- Configure the database subclient to use an IntelliSnap pre-process and post-process script to freeze and thaw the database.
- Perform a IntelliSnap backup on the database subclient. The Commvault software automatically freezes the databases, takes a snapshot of the databases and then thaws the databases. The Commvault software creates a backup copy from the snapshot.
- Perform a traditional backup on the journal subclient.

Getting Started for InterSystems Caché Databases on Physical Servers or RDMs

Step 1: Before You Begin

Verify the System Requirements for the Windows File System Agent or UNIX File System Agent.

See the following sections to learn more about the capabilities and requirements of the Windows File System Agent:

- System Requirements
- License Requirements
- Supported Features

See the following sections to learn more about the capabilities and requirements of the UNIX File System Agent:

- System Requirements
- License Requirements
- Supported Features

Step 2: Install the File System Agent

You must install the file system agent on all servers that host the InterSystems Caché databases. Review each of the following topics to get started with the installation.

Windows

UNIX

Step 3: Install the MediaAgent

For more information, see [Installing the MediaAgent](#).

Step 4: Select the Storage Array

For a complete list of supported clone arrays, see [IntelliSnap Support](#).

For more information about selecting the array, see [Selecting the Storage Array](#).

Step 5: Prepare for Your First Backup and Restore

1. Open the CommCell Console.
2. Configure a storage device.
3. Configure a Storage Policy for the backups.

Data Covered by Storage Policy

InterSystems Caché databases

InterSystems Caché journal files

Best Practice

Set the storage policy data retention to 14 or more days and 2 cycles.

Set the storage policy data retention to 14 or more days.

Note: This value is based on a default installation. You can modify this value based on your Recovery Point Objective (RPO).

4. Create a snapshot copy for the storage policy.

Configuration for the InterSystems Caché Database

The following configuration is required to back up the InterSystems Caché database.

1. Create a script that freezes the InterSystems Caché database.
2. Create a script that thaws the InterSystems Caché database.
3. Configure the client for IntelliSnap.
4. Create 3 subclients.
 - a. Create a subclient that contains the drives that contain the database. You perform an IntelliSnap backup on this subclient.
 - b. Create a subclient that has the content (**Subclient Properties** dialog box, **Content** tab) as the root volume and configure the subclient for 1-Touch.
 - Windows Configurations
 - UNIX Configurations
 - c. **Best Practice:** Create a subclient that contains the journal files.

Creating the Script to Freeze the InterSystems Caché Databases

Each InterSystems Caché database must be frozen before you perform the IntelliSnap backup.

You can have the Commvault software automatically place the InterSystems Caché databases in the frozen state.

Best Practice: Use journaling to protect against data loss when the database is in frozen state.

Procedure

- Use the Instfreeze script that Epic sends.

For non-Epic EHR Data Protection Solution configurations, you can get additional information on the script, on the InterSystems Documentation Site (<http://docs.intersystems.com/cache20131/csp/docbook/DocBook.UI.HomePageZen.cls>), *ExternalFreeze*.

What to Do Next

- After you create the script, configure the subclient to use this script (**Advanced Subclient Properties** dialog box, **Pre/Post Process** tab, **PreSnap Process** box).

Creating the Script to Thaw the InterSystems Caché Databases

After the IntelliSnap backup completes, you must place the InterSystems Caché databases back in a state where transactions can occur. This is known as thawing the database.

You can have the Commvault software automatically place the InterSystems Caché databases in the thawed state.

Procedure

- Use the Instthaw script that Epic sends.

For non-Epic EHR Data Protection Solution configurations, you can get additional information on the script, on the InterSystems Documentation Site (<http://docs.intersystems.com/cache20131/csp/docbook/DocBook.UI.HomePageZen.cls>), *ExternalThaw*.

What to Do Next

- After you create the script, configure the subclient to use this script (**Advanced Subclient Properties** dialog box, **Pre/Post Process** tab, **PostSnap Process** box).

Configuring the InterSystems Caché Database Client for IntelliSnap

Applies to: Physical and virtual servers (with physical RDMs) that host the InterSystems Caché databases.

Configure the InterSystems Caché database client for IntelliSnap.

Best Practice: Configure encryption for the InterSystems Caché database client.

Procedure

1. From the CommCell Browser, expand **Client Computers**.
2. Right-click the *client* and click **Properties**.
The **Client Computer Properties** dialog box is displayed.
3. Click **Advanced**.
The **Advanced Client Computer Properties** dialog box is displayed.
4. On the **General** tab, select the **Enable IntelliSnap** check box.
5. Configure encryption for the client. For information on how to configure encryption for a client, see client encryption.
6. Click **OK** to close the **Advanced Client Computer Properties** dialog box.
7. Click **OK** to close the **Client Computer Properties** dialog box.

Configuring a Subclient for the InterSystems Caché Database

When you install the file system agent, the software automatically creates a default backup set.

Create a subclient that includes the drives that contain the databases.

Procedure

1. From the CommCell Browser, expand **Client Computers** > *client* > **File System** > **backup_set**.
2. Right-click the **backup_set**, point to **All Tasks**, and then click **New Subclient**.
The **Create New Subclient** dialog box is displayed.
3. On the **General** tab, in the **Subclient Name** box, type a name.
4. On the **Content** tab, click **Browse**, and then select the volumes that host the InterSystems Caché databases and then click **Add**.
5. On the **Storage Device** tab, in the **Storage Policy** list, click a storage policy name.
6. Click **Advanced**.

The **Advanced Subclient Properties** dialog box is displayed.

7. On the **IntelliSnap Operation** tab, configure the IntelliSnap properties.
 - a. Select the **IntelliSnap** check box.
 - b. From the **Available Snap Engines** list, select the engine.
Note: Select the Clone version of the array (for example, **EMC VNX/CLARiiON Snapview Clone**).
For a complete list of supported clone array, see IntelliSnap Support.
 - c. Select the MediaAgent that performs backup copy operations from the **Use Proxy** list.
Note: The proxy server operating system must be the same or a higher version than the client.
 - d. To use a different proxy computer than the MediaAgent for the backup copy, select the **Use Separate Proxy for Backup copy** and then select the server from the **Proxy** list.
 - e. To use the source computer when the proxy computer is unreachable, select the **Use source if proxy is unreachable** check box.

8. On the **Pre/Post Process** tab, enter the scripts to freeze and thaw the database.
 - a. In the **PreSnap Process** box, enter the full path to the freeze script
For information on creating the freeze script, see *Creating the Script to Freeze the InterSystems System Database* (on page 6).
 - b. In the **PostSnap Process** box, enter the full path to the thaw script
For information on creating the thaw script, see *Creating the Script to Thaw the InterSystems System Database* (on page 6).
 - c. Click **OK** to close the **Advanced Subclient Properties** dialog box.
9. Click **OK** to close the **Subclient Properties** dialog box.

Configuring a Subclient for the InterSystems Caché Database Journal Files

When you install the file system Data Agent, the software automatically creates a default backup set.

Create a subclient that includes the drives that contain the InterSystems Caché database journal files.

Procedure

1. From the CommCell Browser, expand **Client Computers > client > File System > backup_set**.
2. Right-click the **backup_set**, point to **All Tasks**, and then click **New Subclient**.
The **Create New Subclient** dialog box is displayed.
3. On the **General** tab, specify the following settings:
 - a. In the **Subclient Name** box, type a name.
 - b. On the **Content** tab, click **Browse**, and then select the volumes that host the InterSystems Caché journal files and then click **Add**.
Note: If you use the default settings for a UNIX installation, the journal files are located in the `/intersystems/prd*` directory.
4. On the **Storage Device** tab, in the **Storage Policy** list, click a storage policy name.
5. Click **Advanced**.
The **Advanced Subclient Properties** dialog box is displayed.

6. On the **IntelliSnap Operation** tab, configure the IntelliSnap properties.
 - a. Select the **IntelliSnap** check box.
 - b. From the **Available Snap Engines** list, select the engine.
 - c. Select the MediaAgent that performs backup copy operations from the **Use Proxy** list.

Note: The proxy server operating system must be the same or a higher version than the client.
 - d. To use a different proxy computer than the MediaAgent for the backup copy, select the **Use Separate Proxy for Backup copy** and then select the server from the **Proxy** list.
 - e. To use the source computer when the proxy computer is unreachable, select the **Use source if proxy is unreachable** check box.
7. Click **OK** to close the **Subclient Properties** dialog box.

InterSystems Caché Database Backups

Complete the following procedures to back up the InterSystems Caché database.

1. Perform a backup a Backup of the InterSystems Caché Database (on page 10).
2. **Best Practice:** Perform a Backup of the InterSystems Caché Journal Files (on page 11).
3. Perform a backup copy of the InterSystems Caché Database and Journal Files Backups (on page 12)

Performing a Backup of the InterSystems Caché Database

Perform an IntelliSnap backup on the subclient that you configured to back up the InterSystems Caché database data.

The pre-process script that you configured for the subclient freezes the Caché database before the software takes the snapshot.

The post-process script that you configured for the subclient thaws the Caché database after the backup completes.

Procedure

1. From the CommCell Browser, expand **Client Computers** > *client* > **File System**.
2. Right-click the *subclient* and click **Backup**.
3. Select the backup type and job initiation:
 - a. In the **Backup Type** section, select **Full**.
 - b. In the **Job Initiation** section, select **Schedule**.

Note: Configure a schedule to run nightly. For information on how to configure a backup schedule, see Schedule Backups.

4. **Optional:** Create an inline copy. An inline copy is a backup copy that the Commvault software creates during the backup operation.
 - a. Click **Advanced**.
The **Advanced Backup Options** dialog box is displayed.
 - b. On the **Data** tab, select the Backup Copy options.
 - Select the **Create Backup Copy immediately** check box.
 - Select **Start Backup Copy job based on Storage Policy Rules**.
 - c. Click **OK** to close the **Advanced Backup Options** dialog box.
5. Click **OK** to close the **Backup Options** dialog box.

You can manage the snapshots (for example, mount a snapshot) that the Commvault backup creates. For information on how to manage UNIX snapshots, see IntelliSnap Array Management.

Performing a Backup of the InterSystems Caché Journal Files

Perform a backup on the subclient that you configured to back up the InterSystems Caché journal files.

Best Practice: Perform this backup more than one time per day. The frequency depends on your Recovery Point Objectives.

Procedure

1. From the CommCell Browser, expand **Client Computers** > *client* > **File System**.

2. Right-click the journal file **subclient** and click **Backup**.
3. Select the backup type and job initiation:
 - a. In the **Backup Type** section, select **Full**.
 - b. In the **Job Initiation** section, select **Schedule**.

Note: Configure a schedule. For information on how to configure a backup schedule, see Schedule Backups.

4. Optional: Create an inline copy. An inline copy is a backup copy that the Commvault software creates during the backup operation.
 - a. Click **Advanced**.

The **Advanced Backup Options** dialog box is displayed.
 - b. On the **Data** tab, select the Backup Copy options.
 - Select the **Create Backup Copy immediately** check box.
 - Select **Start Backup Copy job based on Storage Policy Rules**.
 - c. Click **OK** to close the **Advanced Backup Options** dialog box.
5. Click **OK** to close the **Backup Options** dialog box.

You can manage the snapshots (for example, mount a snapshot) that the Commvault backup creates. For information on how to manage UNIX snapshots, see IntelliSnap Array Management.

Creating a Backup Copy of the InterSystems Caché Database Backup

After you back up the InterSystems Caché databases and journal files, copy the contents of the contents of the snapshot to a disk or tape library to create a copy of the backup.

Procedure

1. From the CommCell Browser, expand **Policies** > **Storage Policies** > **snap_storage_policy**.
2. Right-click the **snap_storage_policy** and click **View Jobs**.

3. In the right pane of the CommCell Browser window, select the backup job for the InterSystems Caché database and then click **Pick for Backup Copy**.
4. Right click the **snap_storage_policy**, point to **All Tasks** and then click **Run Backup Copy**.

The **Backup Copy** dialog box is displayed.

5. In the **No of Simultaneous Job to run** box, enter the number of jobs that you want to run,
6. Select the backup type and job initiation:
 - a. In the **Backup Type** section, select **Full**.
 - b. In the **Job Initiation** section, specify whether to run the backup now or if it will be scheduled.

Note: If you selected **Schedule**, set up the schedule.

For information on configuring a backup schedule, see Schedule Backups.

7. Click **OK** to close the **Backup Copy** dialog box.

Restoring the InterSystems Caché Database

Use this procedure to restore the InterSystems Caché database.

Before You Begin

- Shut down the InterSystems Caché database.

Procedure

1. From the CommCell Browser, expand **Client Computers** > *client* > **File System** > **backup_set**.
2. Right-click the *subclient*, point to **Browse and Restore**.
The **Browse and Restore Options** dialog box is displayed.
3. On the **Advanced Options** tab, select the host name where you installed the MediaAgent from the **Use MediaAgent** list and then click **View Content**.
4. In the right pane of the CommCell Browser window, select the backup set that contains the InterSystems Caché databases and then click **Recover All Selected**.

The **Restore Options** dialog box is displayed.

5. On the **General** tab, clear the **Overwrite Files** and **Restore to same folder** check boxes.
6. Click **OK** to close the **Restore Options** dialog box.

What to Do Next

1. Repeat the procedure for the InterSystems Caché journal files subclient.
2. Bring up the InterSystems Caché database.

InterSystems Caché Database Server Backup and Restore

You must back up the following InterSystems Caché Database Server file system data:

- The Caché database configuration and data files
- The Caché database server System State
- The Caché database root volume

Complete the following procedures for the Caché database servers.

1. Create a subclient that has the content (**Subclient Properties** dialog box, **Content** tab) as the root volume and configure the subclient for 1-Touch.
2. Perform a 1-Touch backup and use the weekly schedule policy.
3. Perform a 1-Touch recovery operation.
 - a. Prepare for the Recovery
 - b. Perform the Recovery

IntelliSnap – Data Aging

Data Aging for IntelliSnap

Data Aging is the process of removing old data from secondary storage to allow the associated media to be reused for future backups.

You can change the retention of your data based on your needs.

Setting Up the Basic Retention Rule

1. From the CommCell Browser, expand **Policies** > **Storage Policies** > **storage_policy**.
2. Right-click the appropriate storage policy copy, and then click the **Properties**.
3. In the **Copy Properties** dialog box, on the **Retention** tab, under **Basic Retention Rule for All Backups**, click the **Retain For**.
 - Enter number of days to retain the data.
 - Enter number of cycles to retain the data.
4. Click **OK**.
5. In the **Confirm Basic Retention** dialog box, click **Yes**.
6. On the ribbon in the CommCell Console, on the **Reports** tab, click **Forecast**, and then click **Run**.
7. The **Data Retention Forecast and Compliance** report displays the data to be pruned when a data aging job is run.

Note:

- To ensure only data intended for aging is actually aged, it is important to identify the data that will be aged based on the retention rules you have configured. Hence, ensure this report includes only the data you intend to age.
- If necessary, fine-tune your rules so that only the intended data is aged.

Running a Data Aging Job

1. From the CommCell Console, right click the CommServe node, click **All Tasks > Data Aging**.
2. In the **Data Aging Options** dialog box, in the Job Initiation area, define whether the data aging job runs immediately or if it will be scheduled.
3. Click **OK**.

If you chose to run the job immediately, the data aging job starts now.

If you chose to run the job according to a schedule, the data aging job runs according to the schedule that you defined.

After data aging job is run, the data will be pruned from the storage.

Extended Retention Rules

Extended retention rules allow you to keep specific full (or synthetic full) backups for an additional period of time.

Extended retention rules can be used in the following circumstances:

- If you have a single drive tape library
- If you want to create a hierarchical retention scheme (grandfather–father–son tape rotation)

Extended retention rules allow you to define three additional "extended" retention periods for full (or synthetic full) backups. For example:

- You may want to retain your weekly full backups for 30 days.
- You may want to retain your monthly full backup for 90 days.
- You may want to retain your yearly full backup for 365 days.

A backup job will be selected for extended retention based on its start time. For example: If a backup job starts at 11:55 pm on August 31st and ends at 1 am on September 1st, then it will be selected as the last full backup for the month of August and will be picked up for extended retention.

In all other cases, we recommend you to use Auxiliary Copy for extended storage as it actually creates another physical copy of the data, thereby reducing the risk of data loss due to media failure.

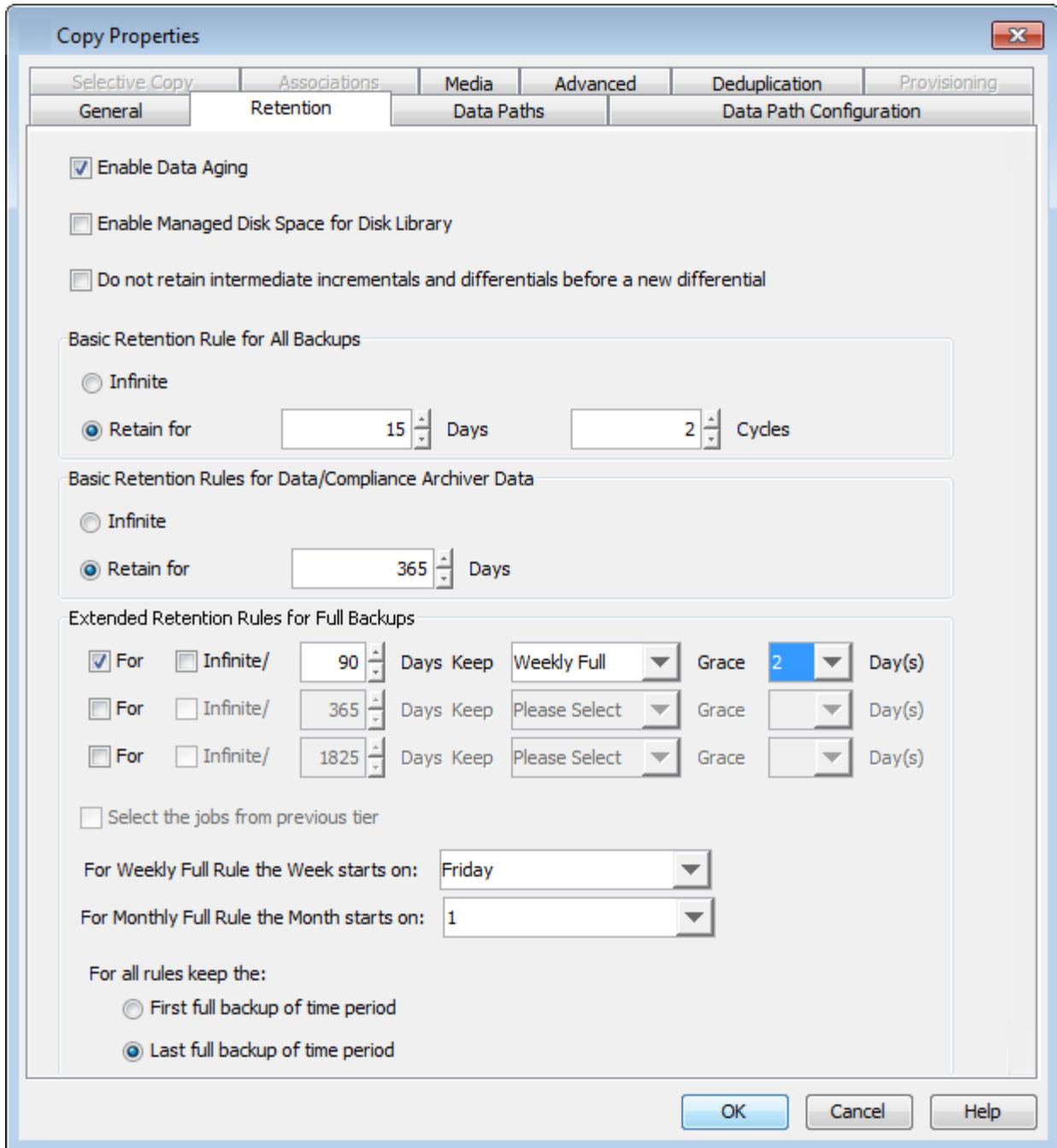
Setting Up Extended Retention Rules

Use the following steps for setting up the extended retention rules:

1. Right-click the storage policy copy and click **Properties**.
2. Click the **Retention** tab.
3. Set the basic retention rules by clicking **Retain for** and entering the number of days and cycles appropriate for your organization.
4. Set the extended retention rules as follows:
 - a. Click the **For** button.
 - b. Enter the number of **Days Total** to retain the backup.
 - c. Click the **Keep** drop-down list, and select the desired backup criteria (e.g., Monthly Full, Weekly Full).
 - d. Click the **Grace Days** drop-down list and select the number of days (e.g., 2).

This allows you to consider the additional number of days along with the Extended Retention rule. For example, if the last full backup job fails with in the defined extended retention criteria, then the next full backup job that ran in the specified grace days will be selected for retention.
5. Repeat Step 4 to configure additional extended retention.

6. Click **OK**.



Advanced Topics

Data Aging – Advanced

Provides comprehensive information on additional Data Aging capabilities.

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