DASH Copy

DASH copy provides a fast method of copying data by transferring only the changed data to a secondary copy (second disk target).

When to use DASH Copy:

- DASH Copy is useful when you need to create secondary copies of deduplicated data.
- DASH Copy is better than the MediaAgent Replication method as it transfers only the modified data to secondary copy. In addition it also provides the following:
  - Selective copy capabilities
  - Separate retention
  - Direct restore
  - Integrated control and reporting
- DASH Copy is an ideal solution for off-site copies to secondary disaster recovery facilities since it does not require a high bandwidth.

When compared with sequential Auxiliary Copy the amount transferred by DASH Copy is reduced by almost 90%.

**HOW DASH COPY WORKS**

DASH copy operations are optimized Auxiliary Copy jobs that transfer only the changed data blocks to a secondary copy (second disk target). Once the initial full Auxiliary Copy job is performed only the changed data blocks are transferred during subsequent Auxiliary Copy jobs.

DASH Copy is similar to source side deduplication but with DASH Copy, the source is a MediaAgent and the destination is a MediaAgent. Once the initial full Auxiliary copy is performed, only the changed blocks are transferred from that point forward.

DASH Copy can be performed using one of the following methods:

- Disk Read Optimized Copy
- Network Read Optimized Copy

**DISK READ OPTIMIZED COPY**

Disk Read Optimized option reduces the I/O load on the primary (source) disk by transmitting only the signatures to the target MediaAgent.

**HOW DASH COPY WITH DISK READ OPTIMIZATION WORKS**

- During the DASH copy operation, the existing signatures are read from the metadata that are available on the primary disk (Source MediaAgent).
- These signatures are compared to the existing signatures on the deduplication database (DDB) located on the destination (Remote) MediaAgent.
- Based on the comparison, the following operations are performed:
If the signature is new (that is, the data block is not present on the destination MediaAgent) then:
- The data is unraveled on the primary MediaAgent.
- Data is compressed, divided into blocks based on the block size, and then the signatures are generated for each block on the primary MediaAgent.
- The data blocks and the signatures are transferred to destination MediaAgent.
- These data blocks are stored on a secondary storage and generated signatures are stored in the DDB.

If the signature is present on the destination DDB, then the data blocks are already available on the destination MediaAgent. Only signature references are transmitted to update the destination DDB.

To get started with Disk Read Optimized Copy, click Next button at right corner of this page.

**NETWORK OPTIMIZED COPY**

DASH Copy with Network Optimization option reduces the number of signatures that are sent over the network. However, the operation is I/O intensive on the disk because new signatures have to be created for the DASH copy. Only unique signatures are sent over the network.

![Dash Copy – Network Optimized](image)

**HOW DASH COPY WITH NETWORK OPTIMIZATION WORKS**

- During the DASH Copy operation, the data on the primary disk is unraveled.
- Unraveled data is compressed, divided into blocks, and then new signatures are generated on the primary MediaAgent.
- These signatures are compared to the existing signature on the DDB located on the destination (Remote) MediaAgent.

Based on the comparison, it performs the following operation:

- If the signature is new (that is the data block is not present on the destination MediaAgent) then
  - The data block along with the signature is sent to the destination MediaAgent.
  - The data blocks are stored on secondary disk, and the signatures are stored in the destination DDB.

To configure Network Optimized copy, see Configuring Network Optimization.
DASH Copy

The following sections explain to setup the DASH Copy (with Disk Read Optimized Copy option) job for first time.

1. Create a Storage Policy
2. Create a Secondary Copy with Deduplication Enabled
3. Enable DASH Copy
4. Associate the Storage Policy to the Subclient
5. Start a Full Backup
6. Run the DASH Copy

**PREREQUISITES**

Configure two disk libraries in the MediaAgent where you plan to setup Dash Copy.

See Disk Libraries for instruction.

**CREATE A STORAGE POLICY**

1. From the CommCell Browser, navigate to and expand Policies.
   
   Right-click Storage Policies, and then click New Storage Policy.

2. By default, Data Protection and Archiving option is selected, click Next to continue.
3. In the **Storage Policy Name** box, type the name for storage policy.
   Click **Next**.

4. From the **Library** list, click the name of a disk library.
   Click **Next**.
5. From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and click **Next**.

6. Click **Next** to accept default values.

   If necessary these values can be modified later.
7. By default, **Yes** and **Enable Client Side Deduplication** check box is selected, which enables source side deduplication on a primary copy.

Click **Next** to continue.

8. By default, name for deduplication database is displayed in **Name** box.

Under **DDB Location**, perform the following:

- From the **MediaAgent** list, click the name of the MediaAgent that will be used to host the deduplication database.
- In the **Location** box, type the name of the folder or **Browse** to the folder in which the deduplication database must be located.
- Click **OK**.

- The deduplication database must be located in a folder and not directly under the root of a disk volume.
- For Linux, make sure to host the deduplication database on LVM volumes.
9. Click **Finish**.

10. You can view the storage policy under **Storage Policies** node.
CREATE A SECONDARY COPY WITH DEDUPLICATION ENABLED

1. From the CommCell Browser, navigate to Policies | Storage Policies.

2. Right-click `<storage_policy>`, point to All Tasks, and then click Create New Copy.

   The Copy Properties dialog box appears.

3. In the Copy Properties dialog box, enter the appropriate information.
   
   a. In the Copy Name box, type name for the copy.
   
   b. From the Library list, click the name of a library.
   
   c. From the MediaAgent list, click the name of a MediaAgent.
   
   d. Select the Enable Deduplication check box.

      The Deduplication tab becomes available.
   
   e. Click the Deduplication tab.

      Deduplication can be enabled only for storage policy copies that are associated with a disk library.
4. The default name of the deduplication database is displayed in Deduplication Database Name box. In the DDB Access Path area, click Configure.

5. In the Number of Partitions box, type or select the number of partitions for deduplication database. Click Choose Path under MediaAgent And Partition Path.

From the Partition Path dialog box, select the following:

- From the MediaAgent list, click the name of the MediaAgent that will be used to host the deduplication database.
- In the Partition Path, type the name of the folder or Browse to the folder in which the deduplication database must be located.

The deduplication database must be located in a folder and not directly under the root of a disk volume.

- Click OK.

Repeat the above steps for each partition and then click Next.
6. The deduplication database information is displayed in the **DDB Path** area. Click **OK**.

7. Click **OK** to accept the default schedule.

8. Secondary Copy is displayed in the **Storage Policy** pane.
ENABLE DASH COPY

1. Right-click the secondary storage policy copy created above, and then click Properties.

![Properties dialog box](image1)

2. Click the Deduplication tab, and then click the Advanced tab.

Select **Enable DASH Copy (Transfer only unique data segments to target)** check box.

By default **Disk Read Optimized Copy** is selected.

Click **OK**.

The saved secondary copy is a DASH copy.

ASSOCIATE THE STORAGE POLICY TO THE SUBCLIENT

1. From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**.

Right-click the **<Subclient>**, and then click **Properties**.
2. Click the **Storage Device** tab. In the **Storage Policy** list, click the storage policy where the DASH Copy was selected. Click **OK**.

3. Repeat above steps 1 - 2 for all subclients that you want to associate with this storage policy.

**START A FULL BACKUP**

1. From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**. Right click the default subclient and click **Backup**.
2. Under **Select Backup Type**, click **Full**.
   
   By default, **Immediate** option is selected under **Job Initiation**.
   
   Click **OK**.

3. You can track the progress of the backup job from the **Job Controller** window. Ensure that the job completes successfully.

### RUN THE DASH COPY

Run the DASH Copy when you want to accelerate the data transfer from the source MediaAgent to destination MediaAgent. The following procedure provided instructions to run the DASH Copy:

1. From the CommCell Browser, navigate to **Policies** | **Storage Policies** | `<storage_policy>`.
   
   Right-click `<storage_policy>`, point to **All Tasks** and then click **Run Auxiliary Copy**.

2. From the **Auxiliary Copy Job Options**, specify the following:
   - Under **Copy Selection**, click **Select A Copy**.
   - From the **Select A Copy** list, click **DASH Copy**.
   - Click **OK**.
3. You can track the progress of the backup job from the **Job Controller** window. Ensure that the job completes successfully.

Once the job completes, you can get information on the deduplicated data using following steps:

- Right click the job and click **Details**.
- The **Data Transferred** field displays the size of the transferred data and in the **Attempts** tab the **Elapsed Time** field displays the time elapsed in the data transfer.
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CONFIGURING NETWORK OPTIMIZATION

When you run the DASH copy backup job with network optimization, the backup operations unravels all the deduplicated source data on the primary disk while reading. A signature module computes the signatures for each block on the primary (source) disk and then compares it with the target deduplication database. Based on the comparison, it performs the following operation:

- If the signature is identified, then it indicates that the data block is already available on the target MediaAgent and only the signature references are transmitted to update the target deduplication database.
- If the signature is not available on the target deduplication database, then it indicates that the data block is new, it transmits the data block along with the signatures to update the target deduplication database and store the new data to secondary disk.

In addition, for above configuration, you can also enable signature caching on the source MediaAgent to avoid the remote looks ups and optimize the network usage. See Enabling Signature Caching For DASH Copy for more information.

1. From the CommCell Browser, navigate to Policies | Storage Policies | <Storage Policy>.
2. Right-click the appropriate storage policy copy, and then click Properties.
3. Click the Deduplication tab, and then click Advanced tab.
4. Select Enable DASH Copy (Transfer only unique data segments to target) check box.
5. Click Network Optimized Copy.
6. Click OK.

CONFIGURING DISK READ OPTIMIZATION

DASH Copy with Disk Read Optimization is performed, copy job optimized the disk read operation on the source MediaAgent by identifying and transferring the data signatures (instead of data itself) to the target MediaAgent.

During this process, the DASH copy reads signatures from the metadata available on the primary disk and compares with the signatures available on the target MediaAgent.

- If the signature is identifies, only the signature references is transferred to update the target DDB.
- If the signature are not available, then the actual data is transferred to the target. On the target MediaAgent, the data is then deduplicated by computing the signatures for each data block.

This data blocks are stored on the secondary storage and the signatures are updated in the target DDB.

As the data available on primary disk is already deduplicated, the signature computing and deduplication on the target MediaAgent can be avoided using the UseAuxcopyReadlessPlus additional settings. This settings also allows to use a local cache on the source MediaAgent and DDB Priming feature with Disk Read Optimization.

- For local cache setup with Disk Ready Optimization, you also need to enable UseCacheDB additional settings.
- We recommend you to enable UseAuxcopyReadlessPlus settings only when the Primary copy is deduplicated.

Use the following steps to enable UseAuxcopyReadlessPlus additional settings:
1. From the CommCell Browser, navigate to **Storage Resources | MediaAgents**.

2. Right-click the `<Source MediaAgent>`, and then click **Properties**.

3. Click the **Additional Settings** tab.

4. Click **Add** button.

5. From the **Add Additional Settings on Windows Client** dialog box, perform the following:
   
   a. In the **Name** box, type `UseAuxcopyReadlessPlus` and press enter.
   
   b. In the **Category**, **Type** and **Description** box the information is automatically populated.
   
   c. In the **Value** box, type `1` to enable.
   
   d. Click **OK**.

6. Click **OK**.

---

**ENABLING SIGNATURE CACHING FOR DASH COPY**

The signature lookup process can be optimized by setting up the local cache on the source MediaAgent. Once you setup local cache, the signatures are first looked up in the local cache. A remote lookup is initiated only when the signatures are not available in the local cache.

Use the following steps to enable signature cache on source MediaAgent:

1. From the CommCell Browser, navigate to **Storage Resources | MediaAgents**.

2. Right-click the `<Source MediaAgent>`, and then click **Properties**.

3. Click the **Additional Settings** tab.

4. Click **Add** button.

5. From the **Add Additional Settings on Windows Client** dialog box, perform the following:
   
   a. In the **Name** box, type `UseCacheDB` and press enter.
   
   b. In the **Category**, **Type** and **Description** box the information is automatically populated.
   
   c. In the **Value** box, type `1` to enable.
   
   d. Click **OK**.

6. Click **OK**.
**SETTING UP DEDUPLICATION ON CLIENT**

You can optimize the network usage by enabling deduplication on client. When you enable the deduplication on client and enable the DASH Copy, the signatures are generated on the source for any new data. A database of the signatures is maintained on the client computer.

1. From the CommCell Browser, navigate to Policies | Storage Policies | <Storage_Policy>.
2. Right-click the appropriate storage policy copy, and then click Properties.
3. Click the Deduplication tab, and then click the Advanced tab.
4. Select Enable Deduplication on Clients check box.
5. Click OK.

**PRIME THE DEDUPLICATION DATABASE WITH DATA FROM EXISTING DDBS**

Whenever a new DDB is created, a fresh copy of the deduplicated data blocks is created for that DDB. However these data blocks may also be available in the sealed DDBs residing in the MediaAgent/data center. The DDB Priming feature discovers such data blocks from the previously sealed DDBs and uses them to baseline the new DDB. This saves the need for source MediaAgent to transfer data blocks that are already available in the destination MediaAgent.

1. From the CommCell Browser, navigate to Policies | Storage Policies | <Storage_Policy>.
2. Right-click the appropriate storage policy copy, and then click Properties.
3. Click the Deduplication tab, and then click the Settings tab.
4. Select Use DDB Priming option with Source-Side Deduplication to enable DDB priming.
5. Click OK.

**LICENSE REQUIREMENT**

DASH Copy requires following licenses based on the License Type:

- For Traditional License, **Block Level Deduplication** license is required on the MediaAgent hosting the deduplication database.
- For License Usage by Capacity, **Data Protection Enterprise** (for Backup) or **Archive Enterprise** (for Archive) license is required.
**PERFORMANCE ON DASH COPIES**

For best performance on the dash copies, if you have Encrypt Data option enabled on the client computer properties, make sure you have Encrypt Data and Re-encrypt data using selected cipher option enabled on the secondary copy.

**USING WAN ACCELERATOR APPLIANCE**

Using WAN accelerator appliances to configure DASH Copy is not recommended. In instances where WAN constraints for bandwidth are in place it is recommended to use DASH Copy with Network Optimized option. This will limit the lookups over the network.

In a DASH Copy configuration hash lookup delays are a function of low latency not low bandwidth. WAN accelerator appliances can actually exaggerate the delay if the data is not incessant. If you have configured in-line WAN accelerator appliances, make sure to configure it in such a way, that it does not process DASH copy traffic.
 HOW DOES DASH COPY WORK WITH THE SIGNATURE CACHE?

The signature lookup process can be optimized by setting up the local cache on the source MediaAgent. Once you setup local cache, the signatures are first looked up in the local cache. A remote lookup is initiated only when the signatures are not available in the local cache.

DISK READ OPTIMIZED COPY

When you run the DASH copy backup job with Disk Read Optimization, the signatures are read from the metadata information of the primary disk data. These signatures are compared with the local cache on the source MediaAgent.

- If the signature is identified in the local cache, then it signifies that the data block was already processed in a previous backup and only the signature reference is transferred to the target DDB.
- If the signature is not available in the local cache on the source MediaAgent, the data along with the signature are transferred to the target MediaAgent. If the signature is not available in the target DDB, then it indicates that the data block is new and updates both the target DDB and local cache with the new signatures and then stores the new data.

NETWORK OPTIMIZED COPY

When you run the DASH copy backup job with network optimization, the data is unraveled on the source MediaAgent and signatures are generated for each data block and then the signatures of the data is compared with the local cache on the source MediaAgent.

- If the signature is identified in the local cache, then it signifies that the data block was already processed in a previous backup and only the signature reference is transferred to the target DDB.
- If the signature is not available in the local cache on the source MediaAgent, the data along with the signature are transferred to the target MediaAgent. If the signature is not available in the target DDB, then it indicates that the data block is new and updates both the target DDB and local cache with the new signatures and then stores the new data.
TROUBLESHOOTING DASH COPY PERFORMANCE ISSUES

If you are experiencing performance issues during DASH copy, you can troubleshoot them by performing the following basic operations:

- **Verify Network Latency between Source and Target MediaAgent.**

  For troubleshooting the slowness, use TestPort utility. This utility allows you to measure the network latency and also available bandwidth.

  - If the Network Latency is low:

    Use Disk Read Optimization option. This eliminates data rehydration and signature generation at source MediaAgent.

    See Getting Started - Enable DASH Copy for step-by-step procedure.

  - If the Network Latency is high:

    Use Network Read Optimization option with Enable Use Cache DB. This reduces the signature transfer over the network.

- **Verify Deduplication Reduction on a Primary Copy**

  DASH copy can be slow because during this operation large amount of data needs to be transferred over a limited bandwidth. This is because of low deduplication ratio on a primary copy due to sub-optimal settings on the primary copy.

  Identify the jobs/clients that are getting backed up with lowest amount of deduplication from the Jobs in Storage Policy Copy Report. See Jobs in Storage Policy Copies Report for more information.
DASH Copy Performance Tuning

Use the following configuration parameters to improve DASH Copy performance.

**DISK READ OPTIMIZED VS NETWORK OPTIMIZED**

DASH Copy can be performed using one of the following methods:

- Disk Read Optimized Copy
- Network Optimized Copy

<table>
<thead>
<tr>
<th>DISK READ OPTIMIZED COPY</th>
<th>NETWORK OPTIMIZED COPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you use Disk Read Optimized the existing primary signatures are acquired from the metadata on disk and sent to the destination side for comparison. This reduces the I/O load on the primary disk but requires all signatures to be transferred across the network.</td>
<td>When you use Network Optimized, the data is read from primary disk and new signatures are created and stored in a local cache. This reduces the number of signatures that are sent over the network but the operation is I/O intensive on the disk as new signatures have to be created for the DASH copy, but only unique signatures are sent over the network.</td>
</tr>
</tbody>
</table>

**STREAM COUNT**

To avoid performance issues when running DASH copies, use the following guidelines when setting up streams for storage policies:

- For deduplication enabled Storage Policy, do not set more than 50 streams.
- For Global Deduplication Storage Policy, stream count should be within 50 streams. Note that this 50 stream count includes all child Storage Policies.

For more information on data streams when using deduplication, see Data Streams.

**STREAM RANDOMIZATION**

Stream Randomization should be enabled for any Storage Policy when Auxiliary Copy is used, including DASH copies. This option will randomize the assignment of streams instead of standard numerical order. This will help distribute data across streams and prevent large discrepancies between data across streams.

Use the following steps to enable stream randomization:

1. From the CommCell Browser, navigate to **Policies | Storage Policies**.
2. Right-click the **Storage Policy** and select **Properties**.
3. Select the **Enable Stream Randomization** check box.
4. Click **OK**.
This value can be further fine-tuned in Data Threshold (in GB) to decide how to distribute data among streams for backup option. The lower the number, the more often distribution is checked.

Use the following steps to configure the tuning parameter to evenly distribute the data across all streams:

1. From the CommCell Console, click Control Panel icon.
2. From the Control Panel window, double-click the Media Management icon.
3. Click the Resource Manager Configuration tab.
4. Modify the value in Data Threshold (in GB) to decide how to distribute data amount streams for backup parameter.

By default the value is set to 500. You can set the value between 0 - 5000.

By configuring the Stream Randomization options you can reduce uneven distribution of data across streams and allow for a more consistent Auxiliary Copy / DASH Copy operations.

**CREATE DASH COPY SCHEDULE TO RESTART STREAMS**

Data is unevenly distributed across streams if streams with smaller amount of data completes before streams with larger amount of data. This can cause performance issues for DASH copies that are dependent on peak stream usage. This can be resolved by creating a schedule that will automatically kill and restart jobs over time to allow for them to run at maximum stream utilization. To allow jobs to restart you will need to modify your DASH copy schedule to run every 30 minutes and to set an end time around your DASH copy window. Let us assume we have a window of 10 hours to run a DASH copy which starts at 6pm, we would set the options as explained in the below procedure, this will allow the job to automatically restart during the window and help keep the full streams running.

Use the following steps to create a new schedule policy for Auxiliary Copy operation:

1. From the CommCell Browser, navigate to Policies | Schedule Policies.
2. Right-click the Schedule Policies and then click Add.
3. From the New Schedule Policy dialog box, select the following:
In the **Name** box, type the name of the schedule policy.

- From the **Type** list, select **Auxiliary Copy**.
- Click **Add** button.

4. From the **AuxCopy Option** dialog box, create a daily schedule starting at 6:00 PM.
   
   Click **Advanced** button.

5. From the **Advanced AuxCopy Options** dialog box, select the following:
   - Click the **Job Retry** tab.
   - Click **Enable Total Running Time** check box and specify the time value as 3 hours.
   - Select **Kill Running Job When Total Running Time Expires** check box.
   - Click **OK**.

6. Click **Options >>** button in the **AuxCopy Options** dialog box.
7. In the **Advanced Schedule Options** dialog box, select **Repeat every** and set the value to **30 min(s)** and end to **2:00 AM**. Click **OK**.

![Advanced Schedule Options dialog box]

8. Click **OK** to close the **AuxCopy Options** dialog box.

9. The defined schedule will be displayed under **Tasks**. Click **OK**.

![New Schedule Policy]

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Copy Properties

Deduplication

Select from the following options:

- DDB Information
- Silo
- Settings
- Advanced

**DDB Information**

Use this dialog box to configure the Deduplication Database.

**Deduplication Database Name**

Displays the name of the Deduplication Database (DDB). When you create a new Deduplication Database, use the space to type the name of the database.

**Total size of Application data**

Displays the size of application data (that is size of data (folder, files, message, and so on) on the client computer) that is backed up for the active deduplication database.

**Total data size on disk**

Displays the total size of the data occupied on the disk for the active deduplication database. This is the size of data on the disk after deduplication and data compression (if enabled).

**Total data size on DDB**

Displays the total size of the data occupied on the media (disk and tape) for the active deduplication database. If you have configured Silo copy, then this is the size of the data on the disk and tape after deduplication.

For example, if your application data size was 10 GB, after deduplication the data stored on the disk was 3 GB. If you have Silo copy configured, and if 1 GB of data was moved to tape. Then this property will display the total size of the data that is occupied on both disk and the Silo destination which is 3 GB. The **Total Data Size on Disk** property will display the data size available only on the disk which is 2 GB.

**Creation time of this DDB**

The date and time in which the currently active deduplication database was created.

**Estimated baseline size for new DDB**

Displays the estimated size required on the disk for a new backup data when the existing deduplication database is sealed.

**DDB Access Path**

The following information is displayed for each Deduplication Database configured for the Storage Policy Copy.

- **Partition**
  
  Displays the number of partition(s).

- **MediaAgent Name And Partition Path**
  
  Displays the name of the MediaAgent in which the deduplication database is configured and the path used to access deduplication database.

- **Minimum Free Space (MB)**
  
  Specifies the total amount of free space that must be available at all times in the volume in which the DDB is configured. If necessary, use the space to modify the amount of minimum free space.

- **Free Space Warning (MB)**
  
  Specifies the amount of free space in the volume in which DDB is configured at which a warning must be generated. If the
amount of free space falls below the specified amount, the system generates an event message and generates the MediaAgents (Disk Space Low) alert, if configured.

**Deduplication Database Creation**

Use the following options to configure the creation of new DDB.

- **Create new DDB every [ ] Days**
  
  Option to create a new DDB based on time interval in days. Select the option and provide the interval in number of days.

- **Create new DDB every [ ] TB**
  
  Option to create a new DDB based on the disk volume. Select the option and provide the volume in TB.

- **Create new DDB every [ ] month(s). Starting from ...**
  
  Option to create a new DDB every month based on time interval in months. Select this option and provide the interval in months and a start date for DDB creation.

You can create a new DDB with one of the following conditions:

- **Create new DDB every [ ] Days and/or Create new DDB every ... TB.** If both the options are set, a new DDB will be created if either one of the two conditions is satisfied.

- **Create new DDB every [ ] month(s). Starting from ...**

**Total Number of DDB(s)**

Displays the total number of DDB partitions created for this copy.

**Total size of Application Data across all the DDB(s)**

Displays the total size of application data backed for the copy across all DDBs.

**Total Data Size on Disk for all the DDB(s)**

Displays the total size of backup data stored on the disk after deduplication for the copy across all DDBs.

If you have Silo Copy configured, then this is the total size of backup data stored only on the disk.

**Total Data Size for all the DDB(s)**

Displays the total size of backup data stored on the media after deduplication for the copy across all DDBs (Sealed and Non-Sealed DDB).

If you have Silo copy configured, then this is the total size of backup data stored on the media (disk & tape).

For example, if your application data size was 10 GB, after deduplication the data stored on the disk was 3 GB. If you have Silo copy configured, and if 1 GB of data was moved to tape. Then this option will display the total size of the data that is occupied on both disk and the Silo destination which is 3 GB. The **Total Data Size on Disk** property will display the data size available only on the disk which is 2 GB.

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**SILO**

Use this dialog box to configure the Silo storage options.

**Remove DDB when the silo store is sealed**

Select this option to automatically delete the sealed DDB along with the deduplicated data. This option frees up disk space by deleting the sealed DDB to Silo Storage.

**Number of Silos to be kept in cache**

Specify the number of recently moved silos to be maintained in the local system cache.

**Enable Space Management**

Option to enable Silo space management on the disk media.

**Amount of Data Size Moved**

Displays the amount of data that is moved to the Silo Storage from the currently active silo.
Amount of Data Size to be Moved
Displays the amount of data to be moved to the Silo Storage from the currently active silo.

Select MediaAgent for Silo Restores
Allows you to select the source MediaAgent that must be used to perform the silo restore. As this MediaAgent will be used to access the tape library containing the Silo storage media, ensure to select a MediaAgent that has access to the appropriate Silo storage media.

Select Destination client for Silo Restores
Allows you to select the destination MediaAgent to which the silo disk volume must be restored. Ensure to select a MediaAgent that has access to the silo-enabled disk. The restore process will start on this MediaAgent.

Settings
Use this dialog box to configure deduplication database settings.

Enable software compression with Deduplication
Select this option to enable software compression on the storage policy copy when performing deduplication.

Use DDB Priming option with Source-Side Deduplication
Select this option if you wish to refer previously sealed DDBs to identify and use existing data blocks to prime the baseline for the current DDB. When clients with source-side deduplication connect to the MediaAgent over a WAN, using this option minimizes the data transfer payload. Note that this option might not be beneficial if the client exists at the data center or the performance throughput is critical.

DDB Availability Option
Use this section to provide options for managing the deduplication database.

- Allow jobs to run to this copy while at least ... partition(s) are available
  Select this option to run/continues backups to the available partitions when there are offline partitions in the deduplication database. The value is set to the half of the number of partitions specified in Number of Partition during Storage Policy creation with Enable use of multiple DDB databases to improve scale option.

  This option is available only for the storage policy configured with partitioned deduplication database.

- Failover to new DDB
  Select this option if you wish to automatically failover to a new DDB in case the current store is damaged or unavailable for access.

- Pause and Recover current DDB
  Select this option if you wish to recover the DDB in case the current DDB is damaged and unavailable for access.

  - Automatically
    Select this option if you wish to recover the DDB automatically.

  - On-Demand
    Select this option if you wish to recover the DDB on demand. If you select this option, you will have to manually initiate the DDB recovery process from the CommCell Console.

Deduplication Settings
Displays the details of deduplication settings. The deduplication details can be configured at the storage policy properties.

- Block level Deduplication factor (in KB)
  Specifies the block size used for block level deduplication. This value is displayed for block level deduplication only.
This tab will be active only for the deduplication-enabled storage policy copy that uses a global deduplication policy. Use this section to provide advanced deduplication options.

**Temporarily disable deduplication**

Select this option to temporarily suspend deduplication. Once selected the client backups will be backed up without deduplication.

**Deduplication Options**

Select options to perform deduplication operations in DASH (Deduplication Accelerated by Streaming Hash) mode. In this mode, hash signatures generated for data segments are effectively used to accelerate data transfer.

- **Enable DASH Full (Read optimized Synthetic Full)** (On secondary copies, this option is Disk Read Optimized Copy under Enable DASH Copy)
  
  Optimizes disk operation by using existing data signatures to identify the backup data. Use this option to reduce signature processing on the source computer.
  
  - If a data segment is previously processed, then the signature is identified and only the signature is transferred to the target.
  - If a data segment is newly processed, then the actual data segment is transferred to the target.

- **Enable Deduplication on Clients (overrides subclient configuration)** (On secondary copies, this option is Network Optimized Copy under Enable DASH Copy)

  Optimizes network usage by performing data deduplication on the source. Use this option for high latency network connections.
  
  - If a data segment is previously processed, then the corresponding signature is identified and transferred to the target.
  - If a data segment is new, then the signature is generated on the source and verified with the signatures on the target. If the signature is present on the target, then only the signature is transferred. If the signature is not present, then the data and the signature are transferred to the target together.