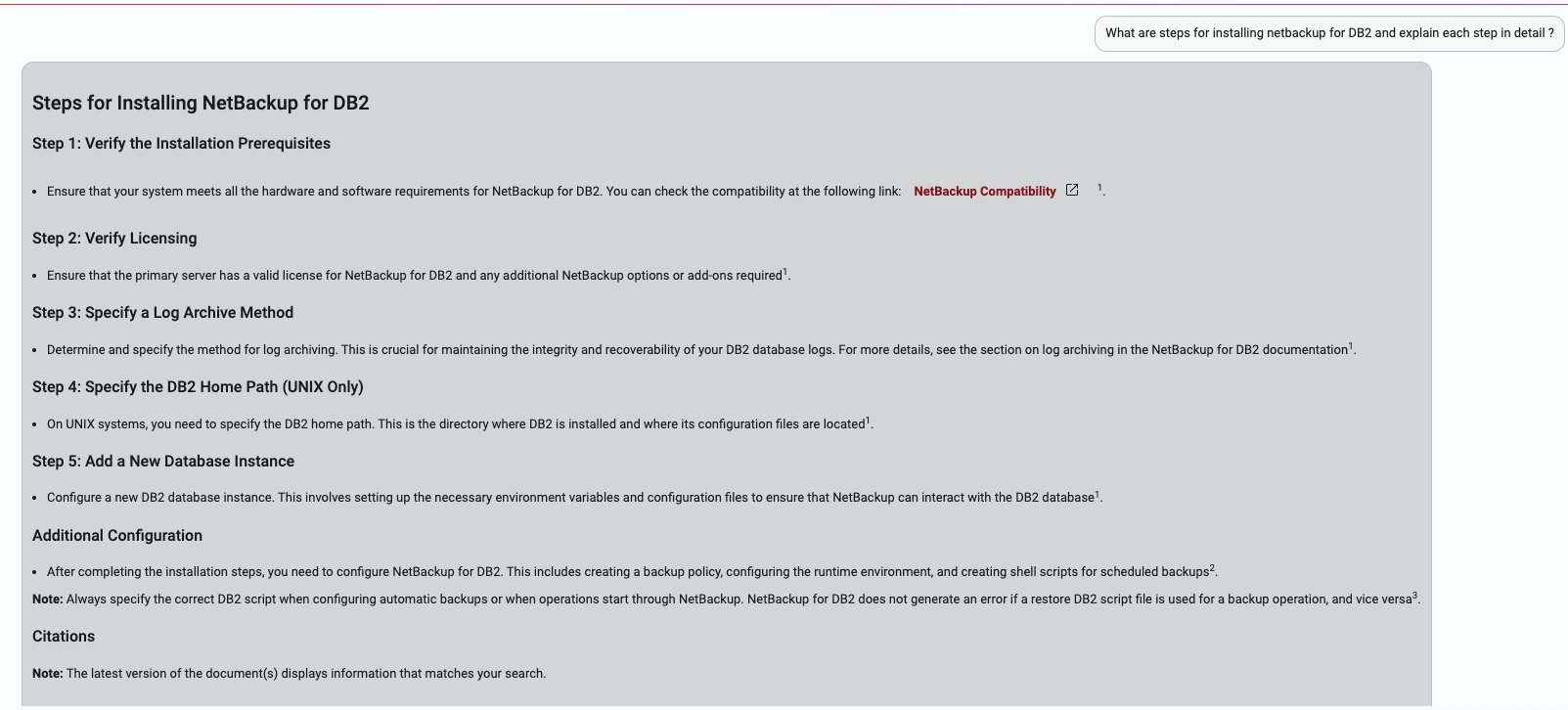
**Few Questions and Expectations**

These are the few test scenarios which we wanted to address as part of on-going RAG Optimization. When asked for “Complex queries which involves crawling through multiple links – copilot unable to fetch the exact response.”  
  
  
Here are few samples of questions which co-pilot is failing to address –   
  
  
1) When asked for “what are the steps for installing netbackup for DB2 and explain each step in detail?”   
  
Expected citation:

<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/v14758586-166024750>

A screenshot of a computer

Description automatically generated  
  
Alta Copilot Response:  
  
Citation: <https://www.veritas.com/support/en_US/doc/16222484-166024750-0/v14758586-166024750>  
  


The citation that copilot is pointing to is right – but it is struggling to extract the details from the ***links within the guide***.   
  
**Note: The expectation here would be to extract the data from each link for each step and explain it in detail.**

2) When asked for “how to enable a policy to archive the logs in DB2 and give me more information on user archive schedules?”

Expected Citation:  
<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/id-SF0A0118459-166024750>  
  
A screenshot of a computer

Description automatically generated

Alta Copilot Response:  
<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/id-SF0A0118459-166024750>

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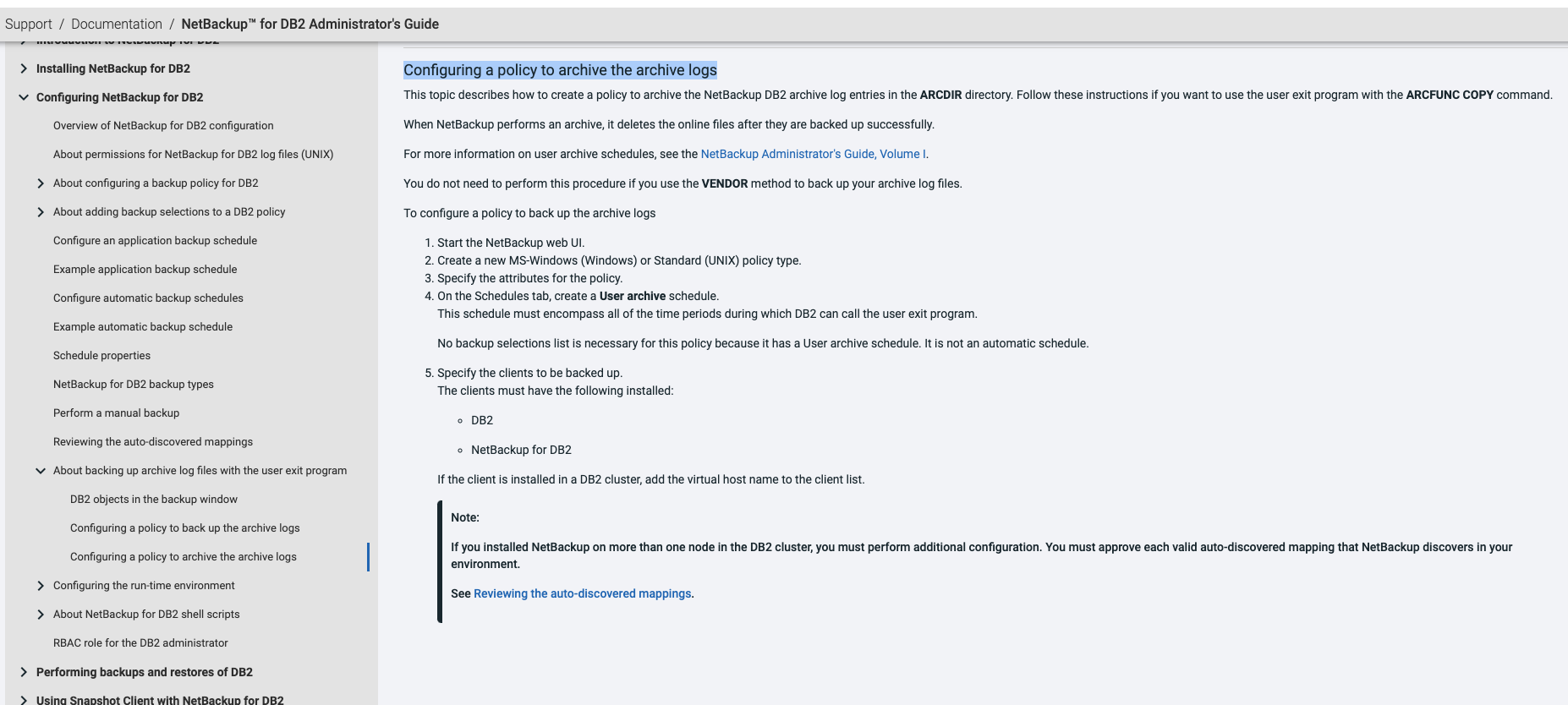
The citation that copilot is pointing to is right – but it is struggling to extract the details from the ***external links*** outside the guide.   
  
**Note: The expectation here would be to extract the relevant data related to “User Archive Schedules” from NetBackup Administrator's Guide, Volume I.' and explain it in detail.**

3) When asked for “how to configure a policy to archive the archive logs in DB2 and what is the additional configuration needed if netbackup installed on more than one node in the DB2 cluster?”

Expected Citations:

<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/id-SF0A0118459-166024750>

<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/v127366162-166024750>



A screenshot of a computer

Description automatically generated

Alta Copilot Response:  
<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/id-SF0A0118459-166024750>

A screenshot of a computer

Description automatically generated

When asked for multiple questions – copilot is giving answer to one of the questions, and it is struggling to extract the details for the other question from links within the guide.

**Note: The expectation here would be to extract the relevant data related to “Additional Configuration needed” from “Reviewing the auto-discovered mappings section' and explain it in detail** from one of the citations shared above (<https://www.veritas.com/support/en_US/doc/16222484-166024750-0/v127366162-166024750>)

These are the few scenarios when addressed thus avoids hallucination and helps co-pilot to perform better.

Vector Search Comparison

|  |  |  |
| --- | --- | --- |
| **User Question** | **Azure AI Search** | **Azure Cosmos DB Hybrid Search** |
| what are the steps for installing netbackup for DB2 and explain each step in detail? | The major installation steps required to run NetBackup for DB2 are as follows:  1. \*\*Verify the installation prerequisites\*\*:  - Before starting the installation, ensure that all prerequisites are met. This includes checking the compatibility of the operating system and platform with the NetBackup for DB2 agent. You can verify this by visiting the NetBackup compatibility list site at [NetBackup Compatibility](<http://www.netbackup.com/compatibility>). [section: v14758586]  2. \*\*Verify that the primary server has a valid license for NetBackup for DB2 and any NetBackup options or add-ons\*\*:  - Ensure that the primary server has a valid license for the NetBackup for DB2 agent. This is crucial as the agent is installed with the NetBackup client software, and no separate installation is required. For a NetBackup cluster, a valid license must exist on each node where the NetBackup server resides. More information on adding licenses can be found in the NetBackup Administrator's Guide, Volume I. [section: v16144611]  3. \*\*Specify a log archive method\*\*:  - Determine and specify the method for archiving logs in DB2. This step is essential for ensuring that the log files are properly backed up and can be restored if needed. The method and syntax for specifying the log archive method depend on the DB2 release. [section: v14758586]  4. \*\*(UNIX) Specify the DB2 home path\*\*:  - On UNIX systems, you need to specify the home path for the DB2 instance. This is done by running a script that gathers additional information about your DB2 environment. Change to the directory `/usr/openv/netbackup/bin` and run the script `./db2\_config`. Supply the home path for the database instance, for example, `/home/db2inst1`. [section: v15493450]  5. \*\*Add a new database instance\*\*:  - Add a new DB2 database instance to the NetBackup configuration. This ensures that all new DB2 instances are included in backup operations. On UNIX, if you install a new DB2 instance after installing NetBackup, you need to add this new instance to the NetBackup configuration. On Windows, the NetBackup for DB2 installation software writes the user exit program to the DB2 installation location. If you reinstall or move the DB2 installation, manually copy `db2uext2.exe` from the NetBackup location into the DB2 location. [section: v15492295]  These steps ensure that NetBackup for DB2 is properly installed and configured to handle database backups and restores efficiently.  Sources:  - [section: v14758586]  - [section: v16144611]  - [section: v15493450]  - [section: v15492295] | The steps for installing NetBackup for DB2 are outlined in the context provided. Here is a detailed explanation of each step:  1. \*\*Verify the installation prerequisites\*\*:  - Before starting the installation, ensure that all prerequisites are met. This includes checking the compatibility of your operating system and platform with NetBackup for DB2. You can verify this by visiting the NetBackup compatibility list site at [NetBackup Compatibility](http://www.netbackup.com/compatibility). This step ensures that your environment is suitable for the installation and operation of NetBackup for DB2.  - [section: v14758586]  2. \*\*Verify that the primary server has a valid license for NetBackup for DB2 and any NetBackup options or add-ons\*\*:  - Ensure that the primary server has a valid license for NetBackup for DB2. This is crucial as the NetBackup for DB2 agent is installed with the NetBackup client software, and a valid license must exist on the primary server. For more information on how to add licenses, refer to the NetBackup Administrator's Guide, Volume I.  - [section: v16144611]  3. \*\*Specify a log archive method\*\*:  - Determine and specify the method for archiving logs. DB2 can write database archive logs using several methods, including the VENDOR method and the user exit method. The choice of method affects how the archive logs are backed up and restored. For example, using the VENDOR method involves specifying the LOGARCHMETH1 parameter in the DB2 configuration to point to the NetBackup library.  - [section: id-SF0A0166207]  4. \*\*(UNIX) Specify the DB2 home path\*\*:  - On UNIX systems, you need to specify the DB2 home path. This involves configuring the environment to recognize the location of the DB2 installation. This step ensures that NetBackup can interact correctly with the DB2 database instances.  - [section: v14758586]  5. \*\*Add a new database instance\*\*:  - If you install a new DB2 instance after installing NetBackup, you need to add this new instance to the NetBackup configuration. This action ensures that all new DB2 instances are included in backup operations. On UNIX, this involves running a script to gather additional information about your DB2 environment and specifying the home path for the database instance.  - [section: v15493450]  These steps ensure that NetBackup for DB2 is properly installed and configured to work with your DB2 database environment. Each step is crucial for the successful integration and operation of NetBackup for DB2.  Sources:  - [section: v14758586]  - [section: v16144611]  - [section: id-SF0A0166207]  - [section: v15493450] |
| how to enable a policy to archive the logs in DB2 and give me more information on user archive schedules? | To enable a policy to archive the logs in DB2, follow these steps:  1. \*\*Start the NetBackup web UI\*\*.  2. \*\*Create a new MS-Windows (Windows) or Standard (UNIX) policy type\*\*.  3. \*\*Specify the attributes for the policy\*\*.  4. \*\*On the Schedules tab, create a User archive schedule\*\*. This schedule must encompass all of the time periods during which DB2 can call the user exit program.  5. \*\*No backup selections list is necessary for this policy\*\* because it has a User archive schedule. It is not an automatic schedule.  6. \*\*Specify the clients to be backed up\*\*. If the client is installed in a DB2 cluster, add the virtual host name to the client list.  7. \*\*If you installed NetBackup on more than one node in the DB2 cluster, you must perform additional configuration\*\*. You must approve each valid auto-discovered mapping that NetBackup discovers in your environment.  When NetBackup performs an archive, it deletes the online files after they are backed up successfully.  For more information on user archive schedules, see the NetBackup Administrator's Guide, Volume I.  \*\*Note\*\*: You do not need to perform this procedure if you use the VENDOR method to back up your archive log files.  \*\*Sources\*\*:  - [section: id-SF0A0118459]  - [section: v15490528] | To enable a policy to archive the logs in DB2 and to provide more information on user archive schedules, follow these detailed steps:  ### Step-by-Step Instructions to Enable a Policy to Archive Logs in DB2  1. \*\*Start the NetBackup Web UI:\*\*  - Open the NetBackup web UI to begin the configuration process.  2. \*\*Create a New Policy:\*\*  - For Windows, create a new MS-Windows policy type.  - For UNIX, create a new Standard policy type.  - [section: id-SF0A0118459]  3. \*\*Specify Policy Attributes:\*\*  - Define the necessary attributes for the policy, such as the policy name, type, and other relevant settings.  - [section: id-SF0A0118459]  4. \*\*Create a User Archive Schedule:\*\*  - Navigate to the Schedules tab within the policy configuration.  - Create a User archive schedule. This schedule must encompass all the time periods during which DB2 can call the user exit program.  - Note that no backup selections list is necessary for this policy because it has a User archive schedule, which is not an automatic schedule.  - [section: id-SF0A0118459]  5. \*\*Specify Clients to be Backed Up:\*\*  - On the Clients tab, add the clients you want to back up.  - If the client is installed in a DB2 cluster, add the virtual host name to the client list.  - If NetBackup is installed on more than one node in the DB2 cluster, you must perform additional configuration. Approve each valid auto-discovered mapping that NetBackup discovers in your environment.  - Ensure that the clients have DB2 and NetBackup for DB2 installed.  - [section: id-SF0A0118459]  ### Additional Information on User Archive Schedules  - \*\*Purpose of User Archive Schedules:\*\*  - User archive schedules are used to define specific time periods during which DB2 can call the user exit program to archive logs. These schedules are crucial for ensuring that log archiving occurs without conflicts or interruptions.  - [section: id-SF0A0118459]  - \*\*Configuration Details:\*\*  - When configuring a policy to archive the archive logs, you do not need to perform this procedure if you use the VENDOR method to back up your archive log files.  - The user archive schedule must encompass all the time periods during which DB2 can call the user exit program.  - [section: id-SF0A0118459]  - \*\*Policy and Schedule Specifications:\*\*  - No backup selections list is necessary for this policy because it has a User archive schedule, which is not an automatic schedule.  - The clients must have DB2 and NetBackup for DB2 installed.  - [section: id-SF0A0118459]  By following these steps and understanding the details of user archive schedules, you can effectively configure a policy to archive logs in a DB2 environment using NetBackup.  Sources:  - [section: id-SF0A0118459] |
| how to configure a policy to archive the archive logs in DB2 and what is the additional configuration needed if netbackup installed on more than one node in the DB2 cluster? | To configure a policy to archive the NetBackup DB2 archive log entries in the ARCDIR directory, follow these steps:  1. \*\*Start the NetBackup web UI.\*\*  2. \*\*Create a new MS-Windows (Windows) or Standard (UNIX) policy type.\*\*  3. \*\*Specify the attributes for the policy.\*\*  4. \*\*On the Schedules tab, create a User archive schedule.\*\*  - This schedule must encompass all of the time periods during which DB2 can call the user exit program.  - No backup selections list is necessary for this policy because it has a User archive schedule. It is not an automatic schedule.  5. \*\*Specify the clients to be backed up.\*\*  - If the client is installed in a DB2 cluster, add the virtual host name to the client list.  6. \*\*If you installed NetBackup on more than one node in the DB2 cluster, you must perform additional configuration.\*\*  - You must approve each valid auto-discovered mapping that NetBackup discovers in your environment.  For more information on user archive schedules, refer to the NetBackup Administrator's Guide, Volume I.  [section: id-SF0A0118459] | To configure a policy to archive the archive logs in DB2 and the additional configuration needed if NetBackup is installed on more than one node in the DB2 cluster, follow these detailed steps:  ### Configuring a Policy to Archive the Archive Logs  1. \*\*Start the NetBackup Web UI\*\*:  - Open the NetBackup web UI to begin the configuration process.  2. \*\*Create a New Policy\*\*:  - For Windows, create a new MS-Windows policy type.  - For UNIX, create a new Standard policy type.  - Specify the attributes for the policy.  3. \*\*Create a User Archive Schedule\*\*:  - On the Schedules tab, create a User archive schedule.  - This schedule must encompass all the time periods during which DB2 can call the user exit program.  - Note that no backup selections list is necessary for this policy because it has a User archive schedule. It is not an automatic schedule.  4. \*\*Specify the Clients to be Backed Up\*\*:  - On the Clients tab, add the clients you want to back up.  - If the client is installed in a DB2 cluster, add the virtual host name to the client list.  5. \*\*Install Required Software on Clients\*\*:  - Ensure that the clients have the following installed:  - DB2  - NetBackup for DB2  ### Additional Configuration for DB2 Cluster  If NetBackup is installed on more than one node in the DB2 cluster, you must perform additional configuration:  1. \*\*Approve Auto-Discovered Mappings\*\*:  - You must approve each valid auto-discovered mapping that NetBackup discovers in your environment.  - In the NetBackup web UI, expand Security > Host mappings.  - Click the Mappings to approve tab.  - Review the mappings for the host and click Approve if you want to use the discovered mappings.  2. \*\*Manually Add Mappings if Necessary\*\*:  - If you need to add a mapping that NetBackup did not automatically discover, you can add it manually.  - In the NetBackup web UI, expand Security > Host mappings.  - Click on the Hosts tab.  - Click Add shared or cluster mappings.  - Type the name of the virtual name of the cluster. Then click Add to choose the hosts to which you want to map that virtual name.  3. \*\*Map Node Names to Virtual Name of the Cluster\*\*:  - In a DB2 cluster environment, you must map the node names to the virtual name of the cluster if the following apply:  - If the backup policy includes the cluster name (or virtual name).  - If the NetBackup client is installed on more than one node in the cluster, the virtual name must be mapped to each node.  - If the NetBackup Client is only installed on one node, then no mapping is necessary.  ### Example of Configurations  - For a cluster with hosts `client01.lab04.com` and `client02.lab04.com`, you may see the following entries:  - `client01.lab04.com, client01, clustername, clustername.lab04.com`  - `client02.lab04.com, client02, clustername, clustername.lab04.com`  - Approve the valid mappings for the hosts:  - For example, if the following mappings are valid for `client01.lab04.com`, then you approve them:  - `client01` (The short name of the client)  - `clustername` (The virtual name of the cluster)  - `clustername.lab04.com` (The FQDN of the virtual name of the cluster)  - When you finish approving the valid mappings for the hosts, click on the Hosts tab.  ### Summary  By following these steps, you can configure a policy to archive the archive logs in DB2 and ensure that the necessary additional configurations are made if NetBackup is installed on more than one node in the DB2 cluster.  ### Sources  - [section: id-SF0A0118459]  - [section: v127366162] |

Vector Configuration

|  |  |
| --- | --- |
| Azure AI Search | Azure Cosmos DB |
|  |  |

NFRs

|  |  |  |
| --- | --- | --- |
| NFRs | Azure AI Search | Azure Cosmos DB Hybrid Search |
| Retrieval Response Time | Q1. 16s  Q2. 9.1s  Q3. 6.4 | Q1. 13s  Q2. 10.2s  Q3. 11.2 |
| Context Length | Q1. 29090  Q2. 16112  Q3. 19745 | Q1. 18622  Q2. 14439  Q3. 18761 |
| Item Retrieval Count | 20 | 10 |
| Total Storage | 411 MB | 469 MB (Data Usage) |
| Vector Index Size | 95.23 MB | 128.5 MB (Index Usage) |
| Compute Cost | $490 | $58.4 ( 1000 RU/s) |
| Avg Retrieved document size for 10 docs |  | 1MB |
| Request Charge Per 10 docs |  | 38 RUs |

Response Quality

|  |  |
| --- | --- |
| Azure AI Search | Azure Cosmos DB Hybrid Search |
| Overall response is good.  LLM response still missing due to missing reference articles.  Missing a few citations. | Overall response is good.  LLM response includes explanations from reference articles.  No missing citations. |
| Need to rephrase query into at least 3 search phrases to include all relevant articles. | Need to query linked references for each item. This can be addressed with Stored procedures.   Need to explore if Nested queries can be used to retrieved linked sections.  The container is using 2 partitions for each book ingested. Each book can ingested into single partition based on product with each partition not exceeding 20GB storage size and 10K RUs. |

Git Repo

[anildwarepo/alta\_rag](https://github.com/anildwarepo/alta_rag)