



Informatica® Cloud Data Integration

# Microsoft Azure Blob Storage V3 Connector

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# Preface

Use *Microsoft Azure Blob Storage V3 Connector* to learn how to read from or write to Microsoft Azure Blob Storage by using Cloud Data Integration. Learn to create a Microsoft Azure Blob Storage V3 connection, develop and run mappings and mapping tasks in Cloud Data Integration.

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# CHAPTER 1

## Introduction to Microsoft Azure Blob Storage V3 Connector

This chapter includes the following topics:

- [Microsoft Azure Blob Storage V3 Connector overview, 7](#)
- [Microsoft Azure Blob Storage V3 Connector task and object types, 8](#)
- [Administration of Microsoft Azure Blob Storage V3 Connector, 8](#)

## Microsoft Azure Blob Storage V3 Connector overview

You can use Microsoft Azure Blob Storage V3 Connector to connect Data Integration and Microsoft Azure Blob Storage.

Use Microsoft Azure Blob Storage V3 Connector to read or write delimited data, binary data, Avro, JSON, and Parquet file formats to Microsoft Azure Blob Storage. Blobs are files of any type and size, and are organized into containers in Microsoft Azure Storage. You can access delimited, Avro, and Parquet files that are block blobs or append blobs with Microsoft Azure Blob Storage V3 connections.

You can create a Microsoft Azure Blob Storage V3 connection and use the connection in mappings and mapping tasks. Create a mapping task to process data based on the data flow logic defined in a mapping.

When you use Avro, Parquet, or JSON files, ensure that only one Cloudera CDH version 5.8 license or higher is enabled in the Secure Agent. To read data from or write data to Avro or Parquet files, you can specify only the Secure Agent running on a Linux system.

You cannot read and write nested and multi-line indented JSON files.

# Microsoft Azure Blob Storage V3 Connector task and object types

The following table lists the Microsoft Azure Blob Storage V3 object types that you can use in Data Integration tasks:

Task Type	Source	Target	Lookup
Mapping	Yes	Yes	No
Mapping task	Yes	Yes	No

## Administration of Microsoft Azure Blob Storage V3 Connector

Before you use Microsoft Azure Blob Storage V3 objects in tasks, an administrator must perform the following tasks:

- Ensure that you have the storage account name and the account key for Microsoft Azure Blob Storage.
- Ensure that you have a container in Microsoft Azure Blob Storage.
- Ensure that you have license for the SDKPatch package for your Data Integration organization.



## CHAPTER 2

# Microsoft Azure Blob Storage V3 connections

This chapter includes the following topics:

- [Microsoft Azure Blob Storage V3 connections overview, 9](#)
- [Microsoft Azure Blob Storage V3 connection properties, 10](#)
- [Configuring proxy settings, 10](#)

## Microsoft Azure Blob Storage V3 connections overview

Microsoft Azure Blob Storage V3 connection enables you to transfer files from a Microsoft Azure Blob Storage source to a Microsoft Azure Blob Storage target. You can use Microsoft Azure Blob Storage V3 connections to read data from or write data to Microsoft Azure Blob Storage.

Use Microsoft Azure Blob Storage V3 connections to specify sources or targets in a mass ingestion task, mapping and mapping task.

Create a Microsoft Azure Blob Storage V3 connection on the **Connections** page and associate it with a mass ingestion task, mapping, or mapping task. Define the source and target properties to read or write data to Microsoft Azure Blob Storage.

# Microsoft Azure Blob Storage V3 connection properties

When you create a Microsoft Azure Blob Storage V3 connection, you must configure the connection properties.

The following table describes Microsoft Azure Blob Storage V3 connection properties:

Connection property	Description
Runtime Environment	The name of the runtime environment where you want to run the tasks. Specify a Secure Agent, Hosted Agent, or serverless runtime environment.
Account Name	Microsoft Azure Blob Storage account name.
Account Key	Microsoft Azure Blob Storage access key.
Container Name	Microsoft Azure Blob Storage container name.
Endpoint Suffix	Type of Microsoft Azure end-points. You can select any of the following end-points: <ul style="list-style-type: none"><li>- <code>core.windows.net</code>: Default</li><li>- <code>core.usgovcloudapi.net</code>: To select the Azure Government end-points</li><li>- <code>core.chinacloudapi.cn</code>: Not applicable</li></ul>

## Configuring proxy settings

If your organization uses an outgoing proxy server to connect to the internet, the Secure Agent connects to Informatica Intelligent Cloud Services through the proxy server.

Contact your network administrator for the correct proxy settings.

Proxy settings do not apply to elastic mappings.

## Configuring proxy settings on Windows

To configure the proxy server settings for the Secure Agent on a Windows machine, you can configure the proxy server settings through the Secure Agent or the JVM options of the Secure Agent.

### Configuring proxy settings through Secure Agent Manager

To configure the proxy server settings through the Secure Agent Manager, perform the following steps:

1. Click **Start > All Programs > Informatica Cloud Secure Agent > Informatica Cloud Secure Agent** to launch the Secure Agent Manager.

The Secure Agent Manager displays the Secure Agent status.

2. Click **Proxy** in the Secure Agent Manager page.
3. Click **Use a Proxy Server** to enter proxy server settings.

4. Configure the following proxy server details:

Field	Description
Proxy Host	Required. Host name of the outgoing proxy server that the Secure Agent uses.
Proxy Port	Required. Port number of the outgoing proxy server.
User Name	Not applicable.
Password	Not applicable.

5. Click **OK**.

The Secure Agent Manager restarts the Secure Agent to apply the settings.

## Configuring proxy settings through JVMOptions

1. Log in to Informatica Intelligent Cloud Services.
2. Open Administrator and select **Runtime Environments**.
3. Select the Secure Agent for which you want to configure a proxy server.
4. On the upper-right corner of the page, click **Edit**.
5. In the **System Configuration Details** section, select the **Type** as **DTM** for the Data Integration Service.
  - Add the following parameters in any **JVMOption** field and specify appropriate values for each parameter:

Parameter	Description
-Dhttp.proxyHost=	Host name of the outgoing HTTP proxy server.
-Dhttp.proxyPort=	Port number of the outgoing HTTP proxy server.
-Dhttp.proxyUser=	Not applicable.
-Dhttp.proxyPassword=	Not applicable.
-Dhttps.proxyHost=	Host name of the outgoing HTTPS proxy server.
-Dhttps.proxyPort=	Port number of the outgoing HTTPS proxy server.
-Dhttps.proxyUser=	Not applicable.
-Dhttps.proxyPassword=	Not applicable.

For example,

```
JVMOption1=-Dhttp.proxyHost=<proxy_server_hostname>
JVMOption2=-Dhttp.proxyPort=8081
JVMOption3=-Dhttps.proxyHost=<proxy_server_hostname>
JVMOption4=-Dhttps.proxyPort=8081
```

6. Click **Save**.

The Secure Agent restarts to apply the settings.

## Configuring proxy settings on Linux

The Secure Agent installer configures the proxy server settings for the Secure Agent based on settings configured in the browser. You can update the proxy server settings defined for the Secure Agent from the command line.

To configure the proxy server settings for the Secure Agent on a Linux machine, use a shell command that updates the `proxy.ini` file. Contact the network administrator to determine the proxy settings.

1. Navigate to the following directory:

```
<Secure Agent installation directory>/apps/agentcore
```

2. To update the `proxy.ini` file, enter the following command:

```
consoleAgentManager.bat configureProxy <proxy host> <proxy port>
```

3. Restart the Secure Agent.

## CHAPTER 3

# Mappings and mapping tasks with Microsoft Azure Blob Storage V3 Connector

This chapter includes the following topics:

- [Data compression in Microsoft Azure Blob Storage V3 sources and targets, 13](#)
- [Directory source in Microsoft Azure Blob Storage sources, 14](#)
- [Microsoft Azure Blob Storage V3 sources in mappings, 15](#)
- [Microsoft Azure Blob Storage V3 targets in mappings, 17](#)
- [Microsoft Azure Blob Storage V3 target file parameterization, 22](#)
- [Rules and guidelines for mappings and mapping tasks, 22](#)

## Data compression in Microsoft Azure Blob Storage V3 sources and targets

You can decompress data when you read data from Microsoft Azure Blob Storage and compress the data when you write data to Microsoft Azure Blob Storage.

Configure the compression format in the **Compression Format** option under the advanced source and target properties.

For the Flat resource type, select only the Gzip compression format. The following table lists the compression formats for Avro and Parquet resource types:

Compression format	Avro File	Flat File	JSON File	Parquet File
None	Yes	Yes	Yes	Yes
Deflate*	Yes	N/A	No	No
Gzip	No	Yes	No	Yes

Compression format	Avro File	Flat File	JSON File	Parquet File
Bzip2	N/A	N/A	No	N/A
Lzo	N/A	N/A	No	N/A
Snappy*	Yes	N/A	No	Yes
*Select None to decompress the Deflate and Snappy file formats.				

To read a compressed file from Microsoft Azure Blob Storage, the compressed file must have specific extensions. If the extensions used to read the compressed file are not valid, the Secure Agent does not process the file. The following table describes the extensions that are appended based on the compression format that you use:

Compression format	File Name Extension
Deflate	.deflate
Gzip	.GZ
Bzip2	.BZ2
Lzo	.LZO
Snappy	.snappy

## Directory source in Microsoft Azure Blob Storage sources

You can select the type of source from which you want to read data.

You can select the following type of sources from the **Source Type** option under the advanced source properties:

- File
- Directory

Use the following rules and guidelines to select **Directory** as the source type:

- All the source files in the directory must contain the same metadata.
- All the files must have data in the same format. For example, delimiters, header fields, and escape characters must be same.
- All the files under a specified directory are parsed. The files under subdirectories are not parsed.
- The connector does not perform any validation if there are multiple blob formats in the directory you select and might result into errors.

# Microsoft Azure Blob Storage V3 sources in mappings

In a mapping, you can configure a Source transformation to represent a Microsoft Azure Blob Storage V3 object.

The following table describes the Microsoft Azure Blob Storage V3 source properties that you can configure in a Source transformation:

Property	Description
Connection	Name of the source connection. Select a source connection or click <b>New Parameter</b> to define a new parameter for the source connection.
Source Type	Source type. Select one of the following types: <ul style="list-style-type: none"><li>- Single Object</li><li>- Parameter: Select Parameter to define the source type when you configure the mapping task.</li></ul>
Object	Name of the source object. You can drill-down and select an object from a sub-folder to fetch metadata from a particular object. When you run a task, the Secure Agent reads data from the container you specified either in connection properties or in the advance properties.

Property	Description
Parameter	<p>Select an existing parameter for the source object or click <b>New Parameter</b> to define a new parameter for the source object.</p> <p>The <b>Parameter</b> property appears only if you select Parameter as the source type.</p>
Formatting Options	<p>Mandatory. Microsoft Azure Blob Storage format options. Opens the <b>Formatting Options</b> dialog box to define the format of the file.</p> <p>Configure the following format options:</p> <ul style="list-style-type: none"> <li>- <b>Format Type</b>: Select the type of the file format. You can select None, Delimited, Avro, JSON, or Parquet file format. Default is None. You must select the <b>Format Type</b> as <b>None</b> to read binary files.</li> <li>- <b>Schema Source</b>: Specify the source of the schema. You can select <b>Read from data file</b> or <b>Import from schema file</b> option. If you select an Avro, JSON, or Parquet format type and select the <b>Read from data file</b> option, you cannot configure the delimiter, escapeChar, and qualifier options. If you select an Avro, JSON, or Parquet format type and select the <b>Import from schema file</b> option, you can only upload a schema file in the <b>Schema File</b> property field. You cannot configure the delimiter, escapeChar, and qualifier options.</li> <li>- <b>Data elements to sample</b>. Not applicable.</li> <li>- <b>Memory available to process data</b>. Not applicable.</li> <li>- <b>Schema File</b>: You can upload a schema file.</li> <li>- <b>Delimiter</b>: Character used to separate columns of data. You can configure parameters such as comma, tab, colon, semicolon, or others. You cannot set a tab as a delimiter directly in the <b>Delimiter</b> field. To set a tab as a delimiter, you must type the tab character in any text editor. Then, copy and paste the tab character in the <b>Delimiter</b> field.</li> <li>- <b>EscapeChar</b>: Character immediately preceding a column delimiter character embedded in an unquoted string, or immediately preceding the quote character in a quoted string.</li> <li>- <b>Qualifier</b>: Quote character that defines the boundaries of text strings. You can configure parameters such as single quote or double quote. You can use the output text qualifier when a delimiter value is present in the data.</li> <li>- <b>Qualifier Mode</b>: This property is not applicable when you read data from a Microsoft Azure Blob Storage source.</li> <li>- <b>Code Page</b>: Select the code page that the Secure Agent must use to read or write data. Microsoft Azure Blob Storage V3 Connector supports only UTF-8. Ignore rest of the code pages.</li> <li>- <b>Header Line Number</b>: Specify the line number that you want to use as the header when you read data from Microsoft Azure Blob Storage. You can also read a data from a file that does not have a header. To read data from a file with no header, specify the value of the <b>Header Line Number</b> field as 0.</li> <li>- <b>First Data Row</b>: Specify the line number from where you want the Secure Agent to read data. You must enter a value that is greater or equal to one. To read data from the header, the value of the <b>Header Line Number</b> and the <b>First Data Row</b> fields should be the same. Default is 1.</li> <li>- <b>Target Header</b>: Select an option to write data with or without header.</li> <li>- <b>Distribution Column</b>: This property is not applicable when you read data from a Microsoft Azure Blob Storage source.</li> <li>- <b>maxRowsToPreview</b>: This property is not applicable when you read data from a Microsoft Azure Blob Storage source.</li> <li>- <b>rowDelimiter</b>: This property is not applicable when you read data from a Microsoft Azure Blob Storage source.</li> </ul>



The following table describes the Microsoft Azure Blob Storage V3 advanced source properties that you can configure in a Source transformation:

Property	Description
Number of concurrent connections to Blob Store	The number of concurrent connections to Blob Store to upload files. Default is 4.
Source Type	Select the type of source from which you want to read data. You can select the following source types: <ul style="list-style-type: none"><li>- File</li><li>- Directory</li></ul> Default is File.
Blob Name Override	Overrides the default file name.
Blob Container Override	Overrides the default container name. When you read data from a directory and override the Blob container, ensure that files in the Blob container that you override with are not empty.
Compression Format	Decompresses data when you read data from Microsoft Azure Blob Storage. You can decompress the data in the following formats: <ul style="list-style-type: none"><li>- None. Select None to decompress deflate and snappy file formats.</li><li>- Gzip</li><li>- Bzip2</li><li>- Lzo</li></ul> Default is None.
Tracing Level	Sets the amount of detail that appears in the log file. You can choose terse, normal, verbose initialization or verbose data. Default is normal.

## Microsoft Azure Blob Storage V3 targets in mappings

In a mapping, you can configure a Target transformation to represent a Microsoft Azure Blob Storage V3 object.

The following table describes the Microsoft Azure Blob Storage V3 target properties that you can configure in a Target transformation:

Property	Description
Connection	Name of the target connection. Select a target connection or click <b>New Parameter</b> to define a new parameter for the target connection.
Target Type	Target type. Select one of the following types: <ul style="list-style-type: none"><li>- Single Object.</li><li>- Parameter. Select <b>Parameter</b> to define the target type when you configure the task.</li></ul>

Property	Description
Object	<p>Name of the target object. You can select an existing object or create a new target at run time.</p> <p>When you select <b>Create New at Runtime</b>, enter a name and path for the target object and select the source fields that you want to use. By default, all source fields are used. The <b>Path</b> attribute is not applicable.</p> <p>The target name can contain alphanumeric characters. You can use only a period (.), an underscore (_), an at the rate sign (@), a dollar sign (\$), and a percentage sign (%) special characters in the file name.</p> <p>You can use parameters defined in a parameter file in the target name.</p>
Parameter	<p>Select an existing parameter for the target object or click <b>New Parameter</b> to define a new parameter for the target object.</p> <p>The <b>Parameter</b> property appears only if you select Parameter as the target type.</p>

Property	Description
Formatting Options	<p>Mandatory. Microsoft Azure Blob Storage format options. Opens the <b>Formatting Options</b> dialog box to define the format of the file.</p> <p>Configure the following format options:</p> <ul style="list-style-type: none"> <li>- <b>Format Type:</b> Select the type of the file format. You can select None, Delimited, Avro, JSON, or Parquet file format. Default is None. You must select the <b>Format Type</b> as <b>None</b> to read binary files.</li> <li>- <b>Schema Source:</b> Specify the source of the schema. You can select <b>Read from data file</b> or <b>Import from schema file</b> option. If you select an Avro, JSON, or Parquet format type and select the <b>Read from data file</b> option, you cannot configure the delimiter, escapeChar, and qualifier options. If you select an Avro, JSON, or Parquet format type and select the <b>Import from schema file</b> option, you can only upload a schema file in the <b>Schema File</b> property field. You cannot configure the delimiter, escapeChar, and qualifier options.</li> <li>- <b>Data elements to sample.</b> Not applicable.</li> <li>- <b>Memory available to process data.</b> Not applicable.</li> <li>- <b>Schema File:</b> You can upload a schema file. You cannot upload a schema file when you select the Create Target option.</li> <li>- <b>Delimiter:</b> Character used to separate columns of data. You can configure parameters such as comma, tab, colon, semicolon, or others. You cannot set a tab as a delimiter directly in the <b>Delimiter</b> field. To set a tab as a delimiter, you must type the tab character in any text editor. Then, copy and paste the tab character in the <b>Delimiter</b> field.</li> <li>- <b>EscapeChar:</b> Character immediately preceding a column delimiter character embedded in an unquoted string, or immediately preceding the quote character in a quoted string.</li> <li>- <b>Qualifier:</b> Quote character that defines the boundaries of text strings. You can configure parameters such as single quote or double quote. Use the text qualifier if you want to read data from a source that have a delimiter value present in the data to write the data to a target. Otherwise, the Secure Agent does not append the text qualifier in the target.</li> <li>- <b>Qualifier Mode:</b> You can specify the qualifier behavior for the target object. You can select one of the following options: <ul style="list-style-type: none"> <li>- <b>Minimal.</b> Default mode. Applies qualifier to data enclosed within a delimiter value or a special character.</li> <li>- <b>All.</b> Applies qualifier to all data.</li> </ul> </li> <li>- <b>Code Page:</b> Select the code page that the Secure Agent must use to read or write data. Microsoft Azure Blob Storage V3 Connector supports only UTF-8. Ignore rest of the code pages.</li> <li>- <b>Header Line Number:</b> Applicable when you perform data preview. Specify the line number that you want to use as the header when you read data from Microsoft Azure Blob Storage. You can also read a data from a file that does not have a header. To read data from a file with no header, specify the value of the <b>Header Line Number</b> field as 0.</li> <li>- <b>First Data Row:</b> Applicable when you perform data preview. Specify the line number from where you want the Secure Agent to read data. You must enter a value that is greater or equal to one. To read data from the header, the value of the <b>Header Line Number</b> and the <b>First Data Row</b> fields should be the same. Default is 1.</li> <li>- <b>Target Header:</b> Select an option to write data with or without header to the target.</li> <li>- <b>Distribution Column:</b> This property is not applicable when you write data to a Microsoft Azure Blob Storage target.</li> <li>- <b>maxRowsToPreview:</b> This property is not applicable when you write data to a Microsoft Azure Blob Storage target.</li> </ul>

Property	Description
	- <b>rowDelimiter</b> : This property is not applicable when you write data to a Microsoft Azure Blob Storage target.
Operation	Target operation. Select <b>Insert</b> . You can only insert data to a Microsoft Azure Blob Storage target.

The following table describes the Microsoft Azure Blob Storage V3 advanced target properties that you can configure in a Target transformation:

Property	Description
Number of concurrent connections to Blob Store	The number of concurrent connections to Blob Store to upload files. Default is 4.
Blob Name Override	Overrides the default file name. You must use this property when you want to write compressed blob files to Microsoft Azure Blob Storage.
Blob Container Override	Overrides the default container name. <b>Note:</b> When you create a new target at the run time and select the blob container override property, the Secure Agent generates an empty header file in the container specified in the connection.
Compression Format	Compresses data when you write data to Microsoft Azure Blob Storage. You can compress the data in the following formats: <ul style="list-style-type: none"> <li>- None</li> <li>- Deflate</li> <li>- Gzip</li> <li>- Bzip2</li> <li>- Lzo</li> <li>- Snappy</li> </ul> Default is None.
Write Strategy	Appends block to a blob, when you select append blob. Applicable to <code>.csv</code> files only.
Blob Type	Writes data to a block blob or an append blob.
Forward Rejected Rows	NA

## Specifying a target

You can use an existing target or create a target to hold the results of a mapping. If you choose to create the target, the agent creates the target when you run the task.

To specify the target properties, follow these steps:

1. Select the Target transformation in the mapping.
2. On the **Incoming Fields** tab, configure field rules to specify the fields to include in the target.
3. To specify the target, click the **Target** tab.
4. Select the target connection.
5. For the target type, choose **Single Object** or **Parameter**.
6. Specify the target object or parameter.

- To create a target file at run time, enter the name for the target file including the extension, for example, `Accounts.csv`.
  - If you want the file name to include a time stamp, click **Handle Special Characters** and add special characters to the file name. For example, add the special characters shown here to include all the time stamp information: `Accounts_%d%m%y%T.csv`.
7. Click **Formatting Options** if you want to configure the formatting options for the file, and click **OK**.
  8. Click **Select** and choose a target object. You can select an existing target object or create a new target object at run time and specify the object name.

9. Specify Advanced properties for the target, if needed.

## Target time stamps

When you create a target at run time, you can append time stamp information to the file name to show when the file is created.

When you specify the file name for the target file, include special characters based on Linux STRFTIME function formats that the mapping task uses to include time stamp information in the file name. The time stamp is based on the organization's time zone.

The following table describes some common STRFTIME function formats that you might use in a mapping or mapping task:

Special Character	Description
%d	Day as a two-decimal number, with a range of 01-31.
%m	Month as a two-decimal number, with a range of 01-12.
%y	Year as a two-decimal number without the century, with range of 00-99.
%Y	Year including the century, for example 2015.
%T	Applicable only to flat files. Time in 24-hour notation, equivalent to %H:%M:%S.
%H	Hour in 24-hour clock notation, with a range of 00-24.
%I	Hour in 12-hour clock notation, with a range of 01-12.
%M	Minute as a decimal, with a range of 00-59.
%S	Second as a decimal, with a range of 00-60.
%p	Either AM or PM.

**Note:** For complex files, instead of %T you can use the equivalent %H\_%M\_%S.

## Microsoft Azure Blob Storage V3 target file parameterization

When you parameterize the file name and target folder location for Microsoft Azure Blob Storage V3 target objects, you can pass the file name and folder location at run time. If the folder does not exist, the Secure Agent creates the folder structure dynamically.

### Microsoft Azure Blob Storage V3 target file parameterization through a parameter file

You can parameterize a Microsoft Azure Blob Storage V3 target file using a parameter file.

To parameterize a Microsoft Azure Blob Storage V3 target file using a parameter file, create a Microsoft Azure Blob Storage V3 target object and add parameters in the target object name and target object path. Define the parameter that you added for the target object in the parameter file. Then, place the parameter file in the following location and run the mapping task:

```
<Informatica Cloud Secure Agent\apps\Data_Integration_Server\data\userparameters>
```

## Rules and guidelines for mappings and mapping tasks

Consider the following rules and guidelines when you configure mappings and mapping tasks:

- When you edit the metadata, all native data types change to Bigint and you cannot change the scale and precision of data types except for the string data type.
- When you write a JSON file to Microsoft Azure Data Lake Blob Storage, ensure that the column names do not contain unicode characters.
- Ensure that the scale of a double data type is not set to 0 in the target file when you read data from or write data to Microsoft Azure Blob Storage.
- The data preview and mapping fail if you read an Avro file that contains binary fields.
- Ensure that the field names in the source or target object do not contain special characters or unicode characters.
- You cannot preview data when you read or write a compressed file.
- When you write an Avro or a Parquet file, ensure that the file does not contain null values, else incorrect data is written in the target for the fields with null values.
- You cannot select append blob as blob type when you read or write a JSON file.

## CHAPTER 4

# Troubleshooting

This chapter includes the following topics:

- [Troubleshooting a connection, 23](#)
- [Troubleshooting a mapping or mapping task, 23](#)

## Troubleshooting a connection

### **The session log does not log the proxy server details**

When you configure a proxy server through the Informatica Cloud Secure Agent user interface, the session log does not log the proxy server details.

Configure the proxy server by setting the JVM Options for your Secure Agent in the Administrator service.

## Troubleshooting a mapping or mapping task

### **When I write a JSON file, the mapping task fails with a Java heap space error.**

When you write a JSON file of size 1 GB or more, the task fails with a Java heap space error.

Set the JVM options for type DTM to increase the -Xms and -Xmx values in the system configuration details of the Secure Agent.

### **When I use the Create new at runtime option to write an Avro file, the schema is created with primitive data types without providing an option to include null values.**

You must manually edit the schema to allow null values as required. For example:

```
{ "type": "record", "name": "Azure_Avro_CT_N", "fields": [
  { "name": "c_custkey" , "type": ["int", "null"] },
  { "name": "c_name" , "type": "string" },
  { "name": "c_address" , "type": "string" },
  { "name": "c_nationkey" , "type": ["long", "null"] }
```

### **The same error message is displayed for every failed mapping.**

You can verify the error message in the session log.

## APPENDIX A

# Microsoft Azure Blob Storage V3 data type reference

This appendix includes the following topics:

- [Microsoft Azure Blob Storage V3 data type reference overview, 24](#)
- [Microsoft Azure Blob Storage V3 and transformation data types, 25](#)
- [Avro data types and transformation data types, 25](#)
- [JSON data types and transformation data types, 26](#)
- [Parquet data types and transformation data types, 26](#)

## Microsoft Azure Blob Storage V3 data type reference overview

Data Integration applications use the String Microsoft Azure Blob Storage native data type and the String Transformation data type in tasks.

### **Microsoft Azure Blob Storage native data types**

Microsoft Azure Blob Storage data types appear in the Fields tab for Source and Target transformations when you choose to edit metadata for the fields.

### **Transformation data types**

Set of data types that appear in the remaining transformations. They are internal data types based on ANSI SQL-92 generic data types, which Data Integration uses to move data across platforms.

Transformation data types appear in all remaining transformations in mappings or mapping tasks.

When the Data Integration application reads source data, it converts the native data types to the comparable transformation data types before transforming the data. When the Data Integration application writes to a target, it converts the transformation data types to the comparable native data types.



# Microsoft Azure Blob Storage V3 and transformation data types

The following table lists the Microsoft Azure Blob Storage V3 data types that the Secure Agent supports and the corresponding transformation data types:

Microsoft Azure Blob Storage V3 Native Data Type	Transformation Data Type	Range and Description
String	String	1 to 104,857,600 characters

## Avro data types and transformation data types

Avro file data types map to transformation data types that the Secure Agent uses to move data across platforms.

The following table lists the Avro file data types that the Secure Agent supports and the corresponding transformation data types:

Avro Data Type	Transformation Data Type	Range and Description
Boolean	Integer	TRUE (1) or FALSE (0)
Bytes	Binary	Precision 4000
Double	Double	Precision 15
Float	Double	Precision 15
Int	Integer	-2,147,483,648 to 2,147,483,647 Precision 10, scale 0
Long	Bigint	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 Precision 19, scale 0
Null	Integer	-2,147,483,648 to 2,147,483,647 Precision 10, scale 0
String	String	-1 to 104,857,600 characters

## JSON data types and transformation data types

JSON complex file data types map to transformation data types that the Secure Agent uses to move data across platforms.

The following table lists the JSON complex file data types that the Data Integration supports and the corresponding transformation data types:

JSON Data Type	Transformation Data Type	Range and Description
boolean	integer	The default transformation type for boolean is integer. You can specify string data type with values of True and False. True is equivalent to the integer 1 and False is equivalent to the integer 0.
Number (double)	double	-1.79769313486231570E+308 to +1.79769313486231570E+308. Precision 15.
Number (float)	double	-1.79769313486231570E+308 to +1.79769313486231570E+308. Precision 15.
Number (int)	integer	-2,147,483,648 to 2,147,483,647 Precision 10, scale 0
Number (long)	bigint	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 Precision 19, scale 0.
string	string	1 to 104,857,600 characters.

## Parquet data types and transformation data types

Parquet file data types map to transformation data types that the Secure Agent uses to move data across platforms.

The following table lists the Parquet file data types that the Secure Agent supports and the corresponding transformation data types:

Parquet Data Type	Transformation Data Type	Range and Description
Boolean	Integer	TRUE (1) or FALSE (0)
Byte_Array	Binary	Arbitrarily long byte array
Double	Double	Precision 15
Float	Double	Precision 15
Int32	Integer	-2,147,483,648 to +2,147,483,647

Parquet Data Type	Transformation Data Type	Range and Description
Int64	Bigint	-9,223,372,036,854,775,808 to +9,223,372,036,854,775,807 8-byte signed integer
Int96	Binary	12-byte signed integer

The Parquet schema that you specify to read or write a Parquet file must be in smaller case. Parquet does not support case-sensitive schema.

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