syncsort

DMX-h ETL Use Case Accelerator

Mainframe Variable Processing

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1 Introduction

Mainframe variable length files are EBCDIC-encoded files with varying record lengths. Each record has a 4-byte prefix which provides the length of the record. As is, these files are non-splittable when stored in HDFS, which effectively means you cannot achieve distributed processing when running a Spark/MapReduce job on such a file.

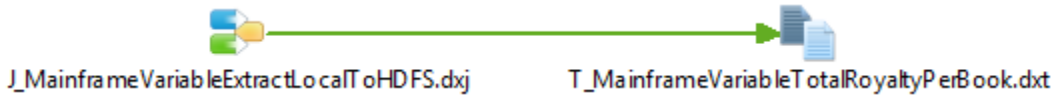
With DMX-h, you can ingest these files into HDFS in a distributable manner by converting them to DMX-h's Mainframe Hadoop Distributable format. You can then run Spark/MapReduce jobs on these EBCDIC-encoded files.

DMX-h ETL use case accelerators are developed as standard ETL jobs and can be run on an edge node, single cluster node, or in the Spark/MapReduce cluster without making any changes to the application.

For guidance on setting up and running this and other use case accelerators, see the Guide to DMX-h ETL Use Case Accelerators.

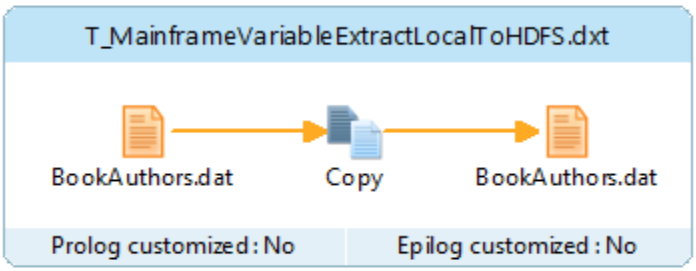
2 Mainframe Variable Processing with DMX-h

The Mainframe variable processing solution consists of a DMX-h job, J_MainframeVariableProcessingTotalRoyaltyPerBook.dxj, with one subjob followed by a copy task.



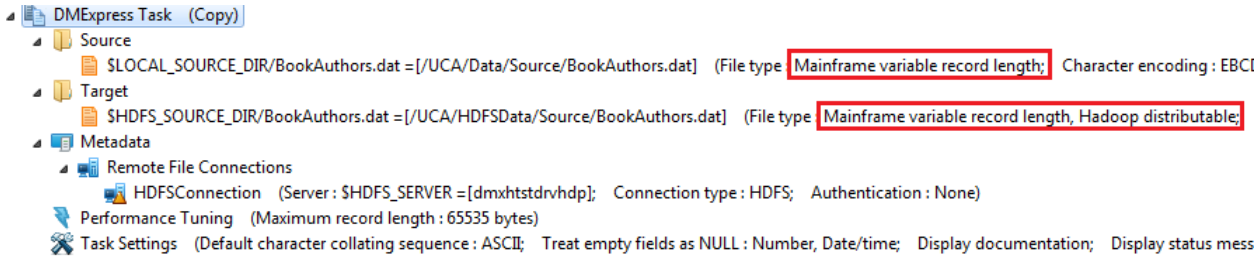
2.1 J_MainframeVariableExtractLocalToHDFS Subjob

This subjob consists of a single copy task that reads the mainframe variable length file and loads it to HDFS. Since it's an ingestion job, DMX-h will run it on the edge node.



2.1.1 T_MainframeVariableExtractLocalToHDFS Task

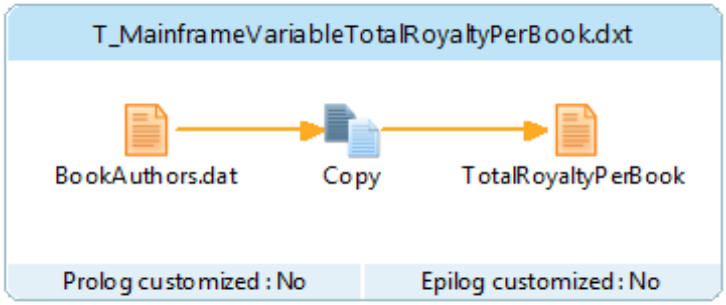
This copy task reads a mainframe variable length file from the local file system and ingests it into HDFS in "Mainframe variable record length, Hadoop distributable" format. You can specify a mainframe server connection in the source file if you are reading directly from the mainframe instead of local disk.



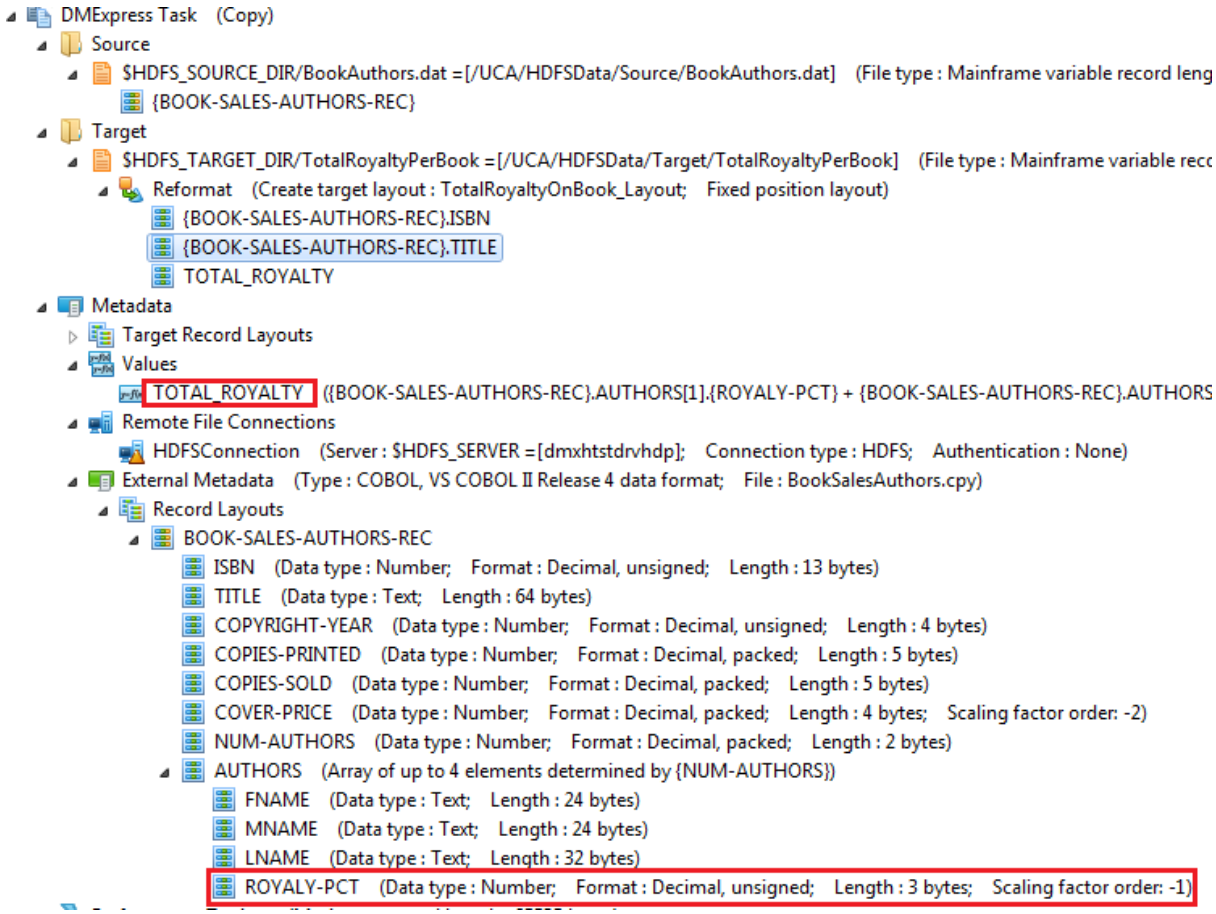
Since this task is ingesting a copy of the mainframe data into Hadoop without interpreting the records, there's no need to provide a copybook to this task.

2.2 T_MainframeVariableTotalRoyaltyPerBook Task

This task, run in the cluster, reads the output of the subjob, which is a Mainframe Hadoop Distributable file. It interprets the EBCDIC data using a copybook, and calculates the total royalty percentage on a book.



Royalty percentage is an element in an OCCURS DEPENDING ON array, the length of which depends on NUM-AUTHORS. We add the royalty percentage for each of the authors in the array to find the total royalty percentage per book. The target of this task is also a mainframe EBCDIC-encoded file, which can later be put back on the mainframe.



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