PRODUCT DEFINTION

Columbus M3 CE AP Automation Connector

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Version history

Version	Date	Created by	Description
1.0	2021-01-08	Fredrika Ståhl	First version
2.0	2021-02-10	Fredrika Ståhl	Master data imported through Data lake
3.0	2021-05-05	Fredrika Ståhl	Data lake for initial load and APIs for delta data
4.0	2022-01-17	Moa Sandström	Updated M3 limitations

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1. Introduction

This document covers the Medius Accounts Payable Automation Multi-Tenant Cloud M3 integration interface. This document will give an overview of the integration as well as some technical descriptions. All descriptions are based on the integration for Infor M3 Cloud/Infor OS.

1.1. System overview

This chapter will give a brief description of the system on a high level.

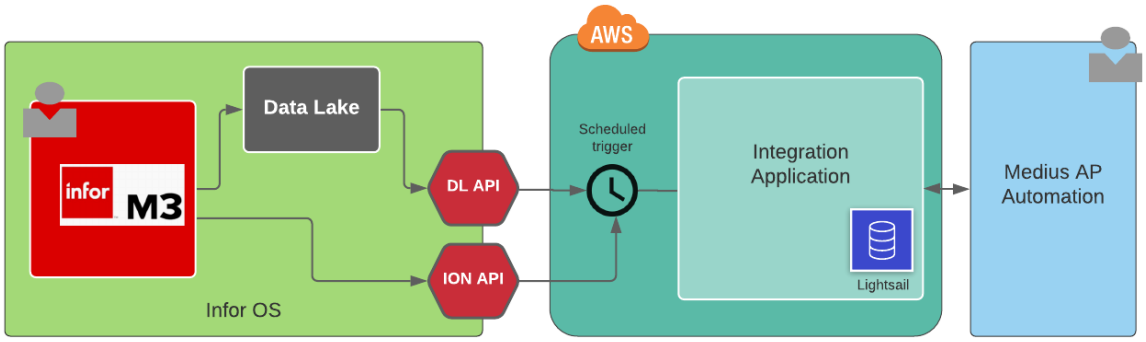


Image 1. System overview

The integration service runs within Amazon Web Services (AWS) on a EC2 server. This virtual server ensures scalability and security. The integration service is always active however, all the data flows are run by a schedule set in the service.

2. Solution overview

The integration service consists of three interfaces in Amazon web services (AWS). The communication is done in both directions but objects in the M3 standard are never modified apart from invoices in APS450.

A short description of the interfaces:

- Master data, sends formatted data from M3 to Medius AP Automation
- Invoice report, sends invoice data from Medius AP Automation to M3
- Invoice verification, sends verification in the form of the voucher number from M3 to Medius AP automation of the reported invoice from the Invoice report interface

2.1. Master data

This interface is responsible for synchronizing master data from M3 to Medius AP Automation. The initial load is done through Data Lake. The synchronization is performed in a set order: Units, Currencies, Currency rates, Dimension values, Dimension restrictions, VAT Codes, Payment Terms, Suppliers, Items and Purchase Orders. This is done to make sure that the later objects, for instance purchase orders, have all the data needed to function. Below entities are processed through this interface.

Master data entity	Data Lake Table	Purpose
Currencies Currency rates	CCURRA	Get currencies
Dimension restrictions Dimension values	FCHACC	Get dimensions
Items	MITMAS	Get items
Items	MITPOP	Get item aliases
Payment terms	CSYTAB	Get payment terms
Suppliers	CIDMAS	Get suppliers
Suppliers	CSUDIV	Get supplier exceptions

Suppliers	CIDVEN	Get supplier finance
Suppliers Units VAT codes VAT rates	CSYTAB	Get system table

Table 1. Master data tables

Once all data has been loaded, a flag is changed in the configuration enabling retrieval of delta data and new objects through APIs. The interface is run by a schedule with an interval of ten minutes in standard configuration.

Master data entity	**Purpose**	**API**
Currencies Currency rates	Get changed and new currencies	EXPORTMI
Dimension restrictions Dimension values	Get changed and new dimensions	
Items	Get changed and new items	
Items	Get changed and new item aliases	
Payment terms	Get changed and new payment terms	
Suppliers	Get changed and new suppliers	
Suppliers	Get changed and new supplier exceptions	
Suppliers	Get changed and new supplier finance	

Suppliers Units VAT codes	Get changed and new system table entries	
VAT rates	Get changed and updated VAT rates	

2.2. Invoices

This flow contains two interfaces, Invoice report and Invoice verification. Before this flow can be run Medius APA must have been populated with master data. Once the master data is in place an invoice is created in Medius APA. The invoice report interface then formats and adds the data to M3 through APS450 via APIs.

2.3. Purchase Orders

The purpose of the purchase order flow is to sync purchase orders and changes that occur on the orders. These changes include changes on lines such as quantities, addition/removal of items as well as deliveries of goods on the purchase order. The information listed below is retrieved from M3 using the API EXPORTMI.

Table	Purpose
MPHEAD	Get order heads
MPLINE	Get order lines
FGRECL	Get delivery lines
CMNUSR	Get user definition

Table 2. Purchase order tables

The default behavior can be described as follows:
Initially, when the purchase order is created, it is not synced to Medius APA. It is only synced when there has been a recent delivery of goods on the order (status 70 to 80). The data from the calls will be joined and enriched before it is sent to Medius APA.

2.4. Installation

The integration service is hosted on an EC2 server within Amazon Web Services (AWS). When a new company is to be added they are added through an interface for the integration service. A new config file is then automatically created in the Nitrite database (embedded no-sql db). The configuration needs to include authentication information for both M3 (Infor OS) and Medius AP Automation. Authentication is done via OAUTH2 and requires both an M3 and a Medius user. When a new customer has been added, timestamps can be set in the config file to determine how far back we want to check for master and transactional data.

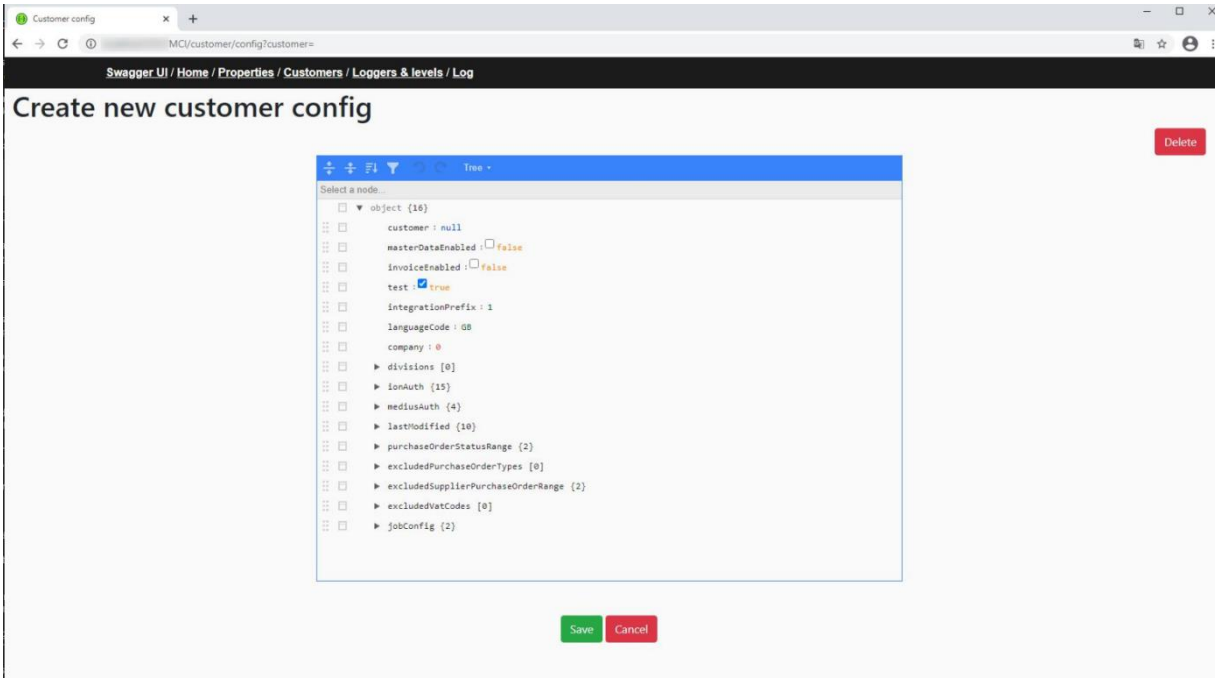


Image 2. Create a new customer config

2.4.1 Configuration in Medius APA

This chapter will describe the setup needed in Medius AP Automation. Once you have navigated to “Client application”. Fill out the form as stated in *Image* 2. M3 integration. Scope is set to Integration.Erp, see *Image 3*. Scope.

Image 2. M3 integration

Image 3. Scope

2.4.2 Configuration in Infor OS (M3)

This chapter will describe the setup needed in Infor OS. The general procedure is to setup an integration user (AD user) to run the integration. The integration user needs to be setup in MNS150 with access to APIs and tables listed below. With this user a backend service can be created in ION API (*Image 4*. Backend Service). When the service is created credentials can be downloaded, creating a service account associated with the credentials (*Image 5*. Download Credentials)

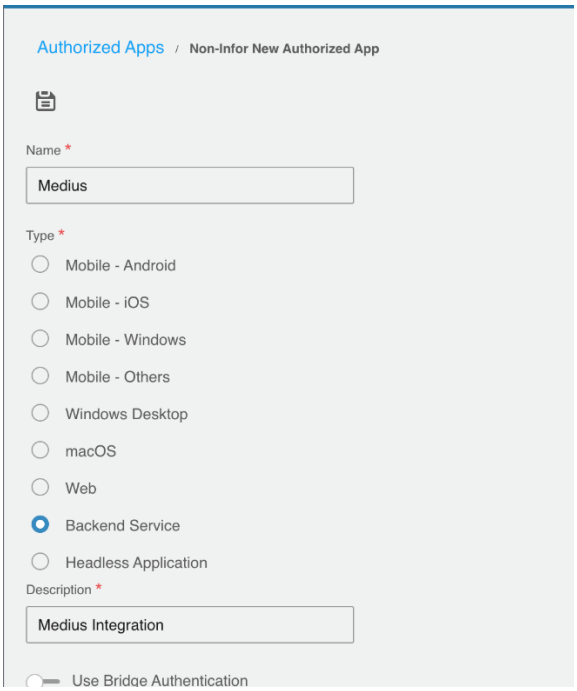


Image 4. Backend Service

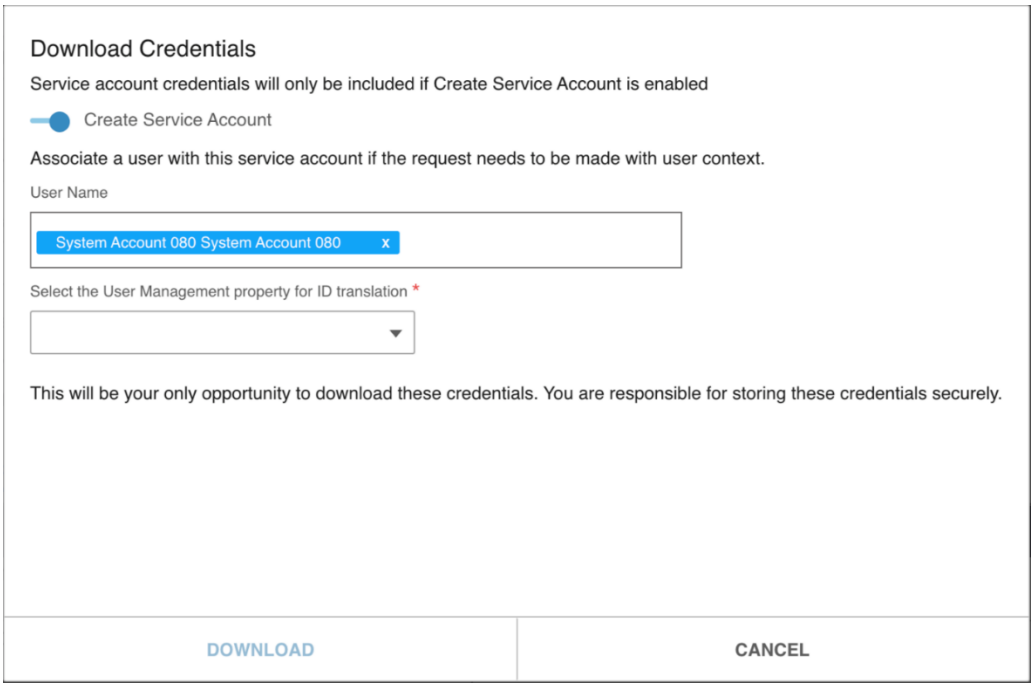


Image 5. Download Credentials

2.4.3 Infor Data lake – Initial load

Data lake is Infor's data warehouse exposing access to copies of M3 tables in csv format. Data access is provided by data lake's own setup of rest APIs. Details of the setup can be found in Appendix 1: Data lake setup guide.

2.4.4 The service user

The service user running the integration needs access to the listed tables and APIs below.

Table	
CCURRA	MPLINE
FCHACC	FGRECL
MITMAS	MPOEXP
MITPOP	CIDMAS
CSYTAB	CSUDIV
MPHEAD	CIDVEN
CMNUSR	CVATPC

API
CRS075MI
APS450MI
APS455MI
APS110MI
CRS630MI
GLS200MI
GLS470MI
MMS200MI

Table 3. M3 tables and APIs

2.5. Prerequisites in M3

Standard Implementation Accelerator settings are not fully compatible with the required setup for Medius APA. The customer (in extension the company implementing the IA) is responsible for validating and adjusting setup in CRS630, CRS395 and APS905. Besides this, the following setup is required:

Setup	**Comment**
FAM function AP50 in CRS405	
APS900 Tolerance levels	

PPS280 Costing elements	Just as long as the workaround for manual coding line on purchase order based invoices is used (currently ongoing development).

Table 4. Prerequisites in M3

2.6. Known limitations

In the following chapter, known limitations are listed divided by technical/business limitations.

2.6.1 Technical limitations

Updates are handled synchronously, which means that there might be a small delay between updates in M3 or Medius APA and when they are sent to Medius APA or M3 respectively. This is by design to minimize the number of requests and reduce the risk of bottlenecks.

2.6.2 Business limitations

Updates and additions of new functionality are tightly connected with Infor's development of M3 programs and corresponding APIs. The rest of this section lists the known business limitations in the integration to this day.

Master data import	**Supported**	**Current status**
Payment date	Not supported	Development ongoing, APIs available. Planned to be released Q1/Q2 2022.
Payment information	Not supported	Development ongoing, APIs available. Planned to be released Q1/Q2 2022.

Invoice transactions	**Supported**	**Current status**
Preliminary booking order based invoices	Not supported	APIs available from Infor in November 2021 release. Tests and validation ongoing. Planned to be released in Q1 2022.
Coding line on order based invoice	Workaround provided	APIs available from Infor in November 2021 release. Tests and validation

		ongoing. Planned to be released in Q1 2022.
Booking of deviations when quantity deviations occur	Workaround in progress	Not supported by Infor
Head level match when not a perfect match between PO and GR.	Head level match not recommended	Not supported by Infor/Later workaround possible in M3
External charges	Supported with limitations	Must be in the same currency and not third-party charge.
Manual update of GR or PO in M3 (APS370, PPS200, PPS330)		Development ongoing. Planned to be released Q1 2022.
Accounting identity interval restrictions	Not supported	Development ongoing. Planned to be released Q1/Q2 2022.

Table 5. Known limitations in M3 regarding master data and invoice transactions

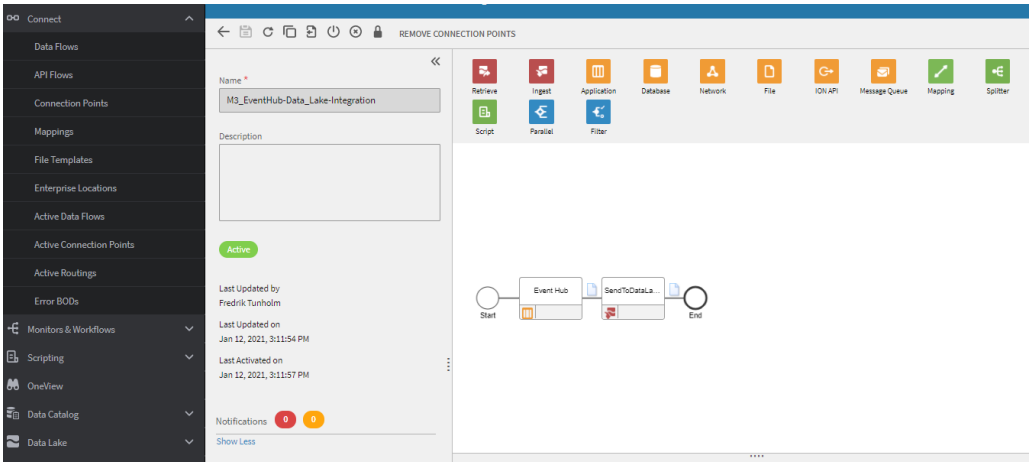
3. Appendix 1: Data Lake Setup Guide

3.1. Required Data Lake tables

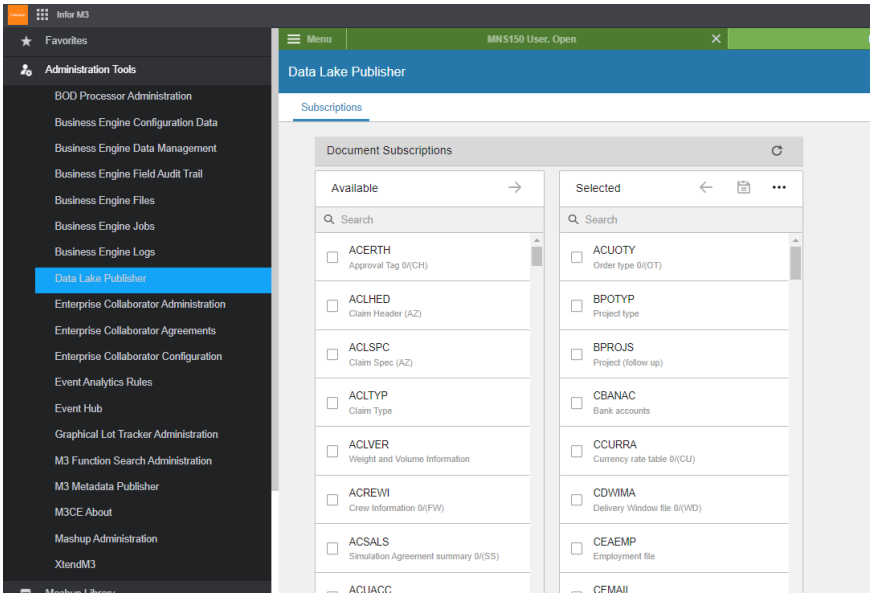
MPHEAD	Purchase order head
MPLINE	Purchase order line
FGRECL	Receiving line
MITMAS	Item
MITPOP	Alias
FCHACC	Accounting
CCURRA	Currency
CSYTAB	System
CVATPC	Vat code
CIDMAS	Supplier
CIDVEN	Supplier
CSUDIV	Supplier
MPOEXP	Fees
MITAUN	Alternative unit of measure
FGRPCL	External charges
CIDADR	Supplier address
CBANAC	Bank account information
FCHCHK	Cross-account checking

3.2. ION Preparations

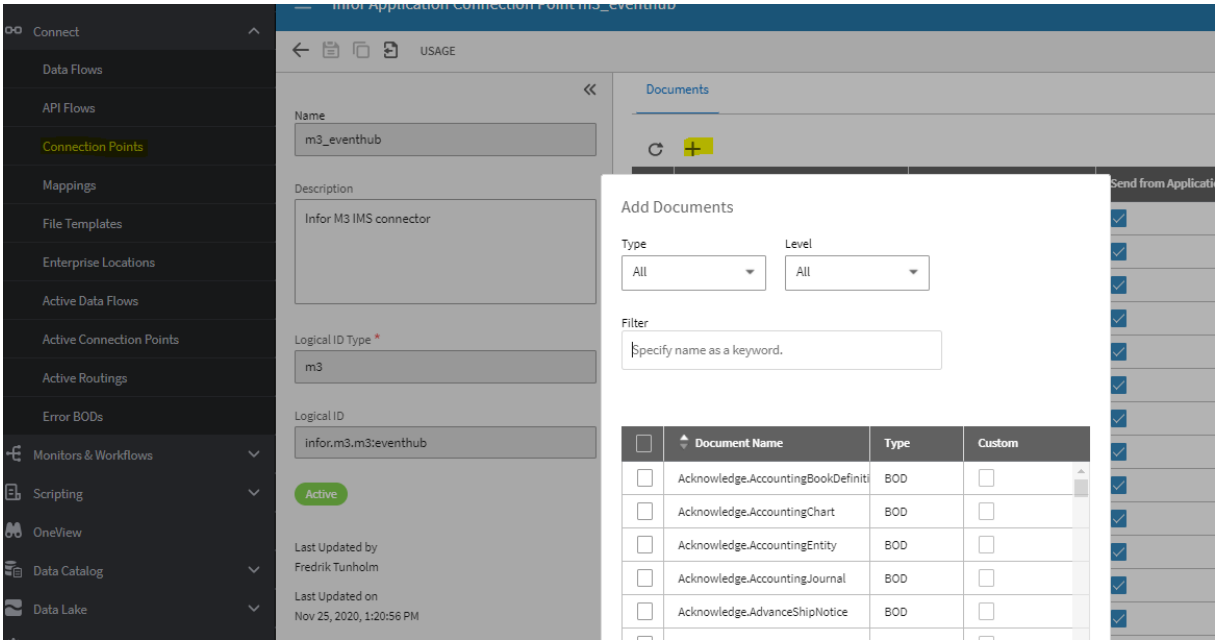
Create a Data Flow that will capture events from Event Hub and send them to Data Lake via the Ingest step.



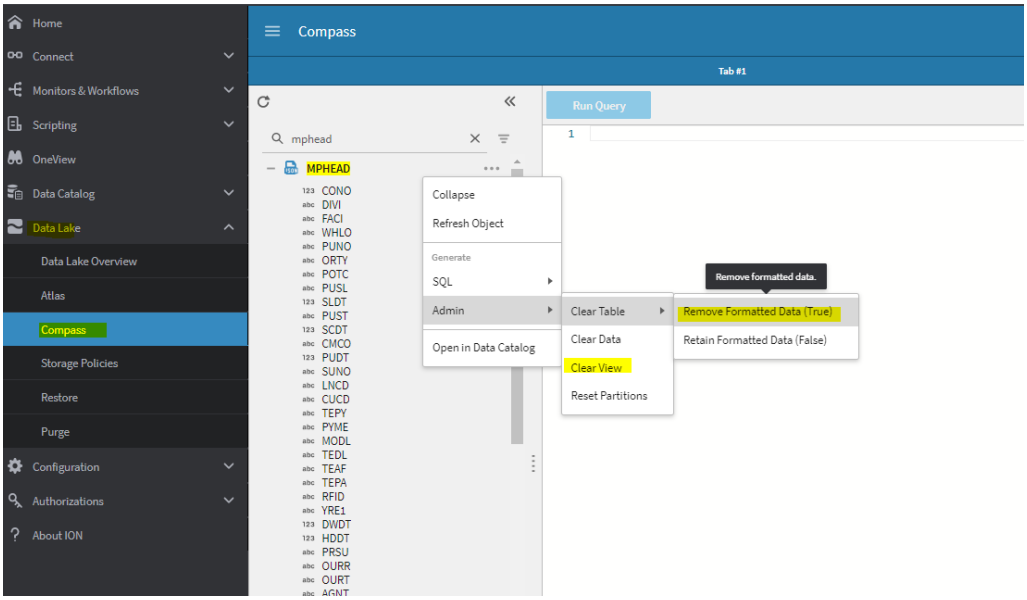
Select all required tables in the Data Lake Publisher



Add the tables in the Event Hub Connection Point. “Send from Application” should be checked.

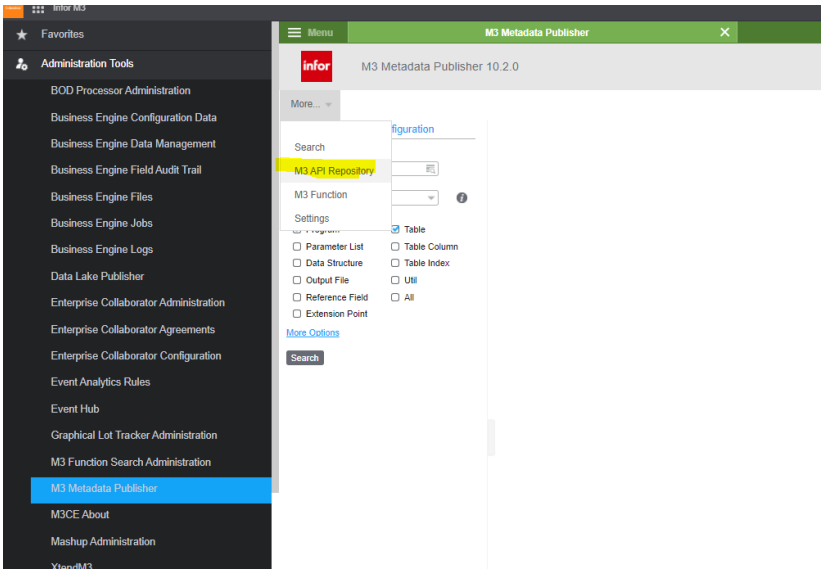


If Infor has introduced changes to the table metadata, then it will be necessary to trigger a metadata refresh. Run “Remove formatted data” and “Clear view” for the tables that require a metadata refresh.

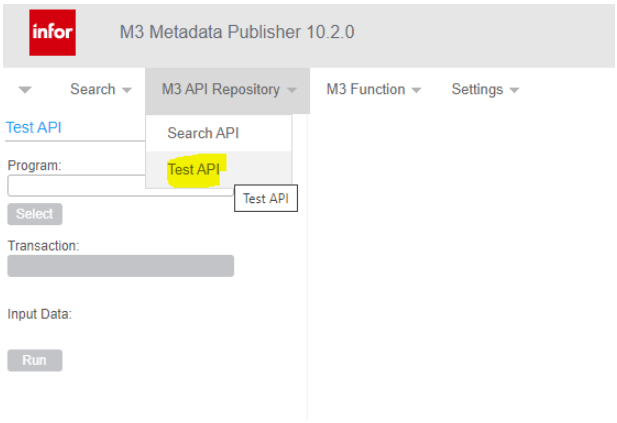


3.3. Load data from M3 to Data Lake (Initial Load)

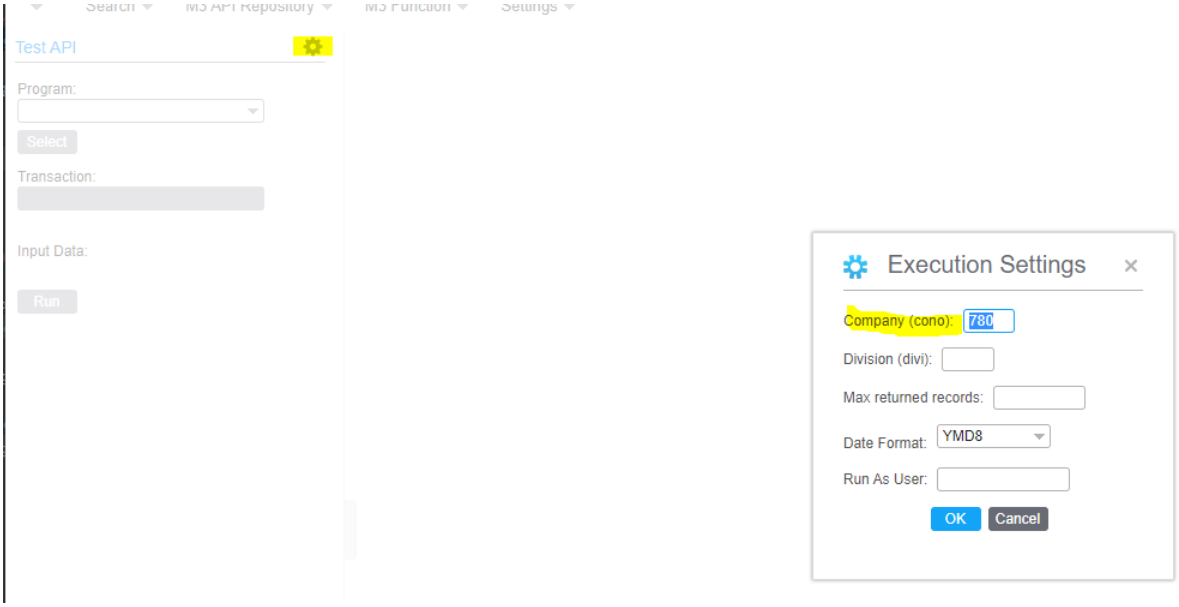
Go to the M3 Metadata Publisher, select “M3 API Repository” (opening this might require a right-click and then “open in new tab”).



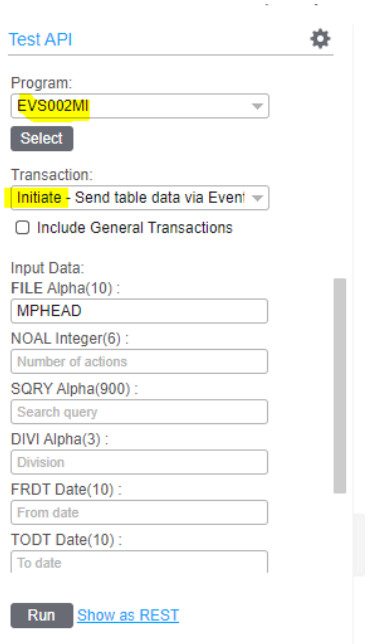
Go to “Test API”



Configure the Test API with the company to do the initial load for (division is optional, leaving it empty will load data for all divisions on selected company).

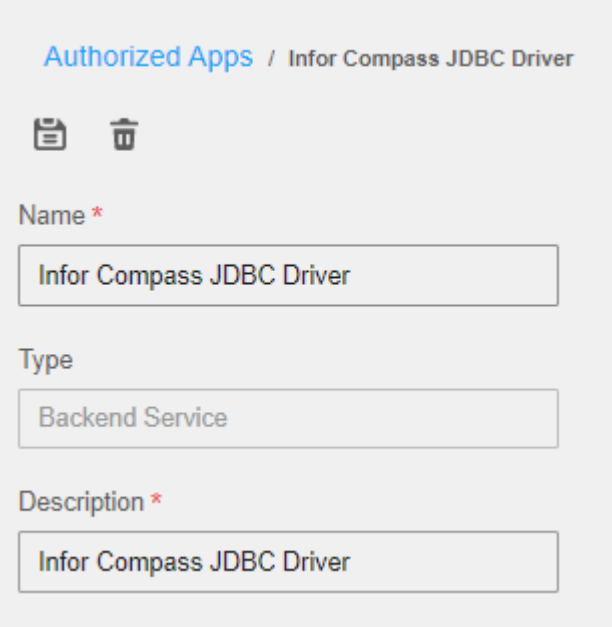


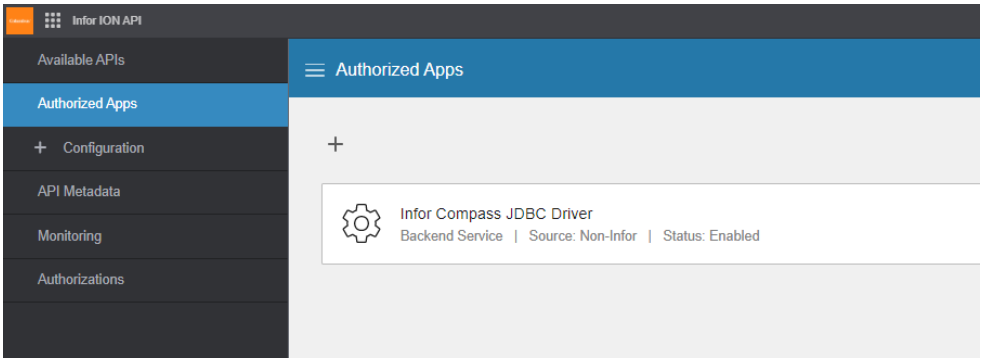
Select the program “EVS002MI” and transaction “Initiate”. Input the table to do the initial load on (FILE). Make sure the field “DTLK” is set to ‘1’ (this means that the data will be sent to Data Lake). Repeat this step for all the required tables.



3.4. Data Lake Authorization

Create an authorized app in Infor ION API. The naming of this authorization is important if the usage of external SQL query editors is to be used to query this Data Lake, which might be good for debugging purposes. Make sure “Issue Refresh Tokens” is enabled for this configuration.





After the authorized app is created, download the credentials file. It is important that this set of credentials is setup with the service account to be used for the integration. The generated file is the credentials that will be used by the integration when communicating with both Data Lake and M3 API.