CMT Tool and Autofunding Operational Specification

Murex Knowledge Base

29 August, 2025

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Project	nXt
Doc reference	
Doc version	1.0.0
Doc status	DRAFT
Authors	Indran Govender
Contributors	Indran Govender, Jason Edwards, Shakil Ahmad
Creation Date	📅 05 Nov 2019
Change Request	
Contacts	
Reviewer	Jason Edwards

Document History Summary

Version	Date	Amended by	Summary of Changes
1.0.0	📅 05 Nov 2019		Doc created

Table of Contents
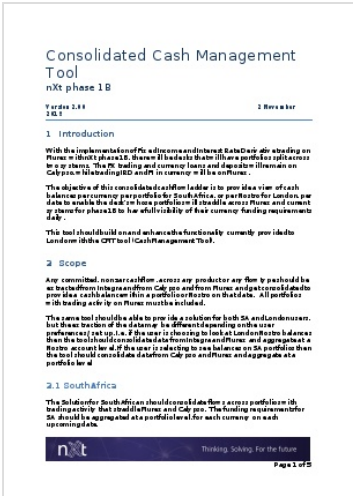
1 Scope of Document

1.1 Introduction

With the implementation of Fixed Income and Interest Rate Derivative trading on Murex with nXt phase 1B, there will be desks that will have portfolios split across two systems. The FX trading and currency loans and deposits will remain on Calypso, while trading IRD and FI in currency will be on Murex.

The objective of this consolidated cashflow ladder is to provide a view of cash balances per currency per portfolio for South Africa, or per Nostro for London, per date to enable the desk's whose portfolios will straddle across Murex and current systems for phase 1B to have full visibility of their currency funding requirements daily.

1.2 Reference Material

Document\Link	Description
	Michelle Verwey

1.3 Definitions, Acronyms and Abbreviations

Definition\Acronym\Abbreviation	Description
CMT	Cash Management Tool
SOD	Start of Day
EOD	End Of day
Intraday	occurs throughout the day at predetermined intervals upstream

1.4 Reference docs

Doc	Description
Calls logged for CMT.docx[1]	Greg doc for supporting CMT
Calls logged for Autofunding.docx[2]	Greg doc for supporting Auto funding

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1. https://1confluence.fnb.co.za/download/attachments/702873532/Calls%20logged%20for%20CMT.docx?
   api=v2&modificationDate=1600183587000&version=1
2. https://1confluence.fnb.co.za/download/attachments/702873532/
   Calls%20logged%20for%20Autofunding.docx?api=v2&modificationDate=1600183600000&version=1

2 **Solution Architecture Outline**

2.1 External Interfaces and System Interactions

Calypso/Murex SOD and intraday files sourcefiles→INFORMATICA→ DB Loader → CMT Database Tables

3 **Functional Requirements**

See attached document in reference material above.

4 Requirements Specification

South Africa
The Solution for South African should consolidate flows across portfolios with trading activity that straddle Murex and Calypso. The funding requirements for SA should be aggregated at a portfolio level, for each currency on each upcoming date.
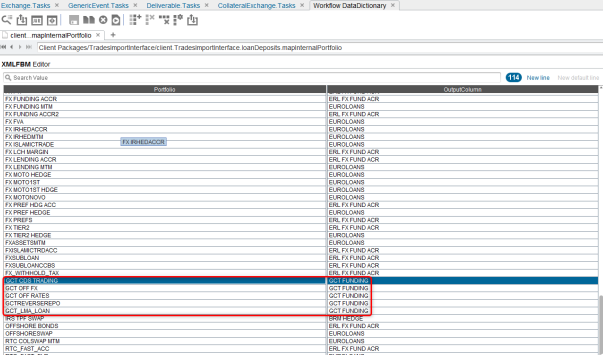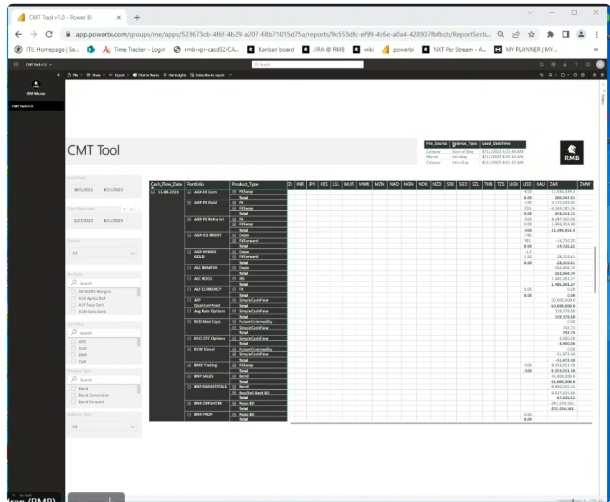
London
The solution for London users must provide a consolidation of flows on Murex, and flows from integra. The funding requirements for London should be aggregated at a Nostro account level.

4.1 CMT Troubleshooting

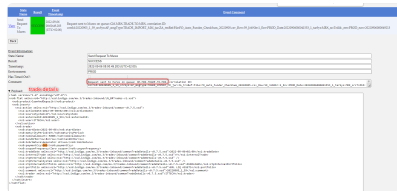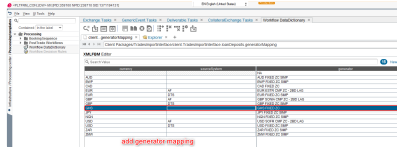| Error/Issue	Summary	Resolution
mv: cannot stat '/mnt/rmb-ppr-nas01/FileStageProd/MUREX/ PROD/EXTRACTION/CMT/ CMT_EOD/CHKS*.control': No such file or directory	This error happens when the control file does not exist. The CMT Informatica job first looks for a control file and if that exists, it will then look for the Murex source file.	**1)** Is the Murex EOD or Intraday file late and does not exist? **Action1:** If you find a control and source file in the folder mentioned in the error message, first try and rerun the job as the file may have not existed when the job ran, so simply re-running the job can resolve the issue. **Action 2:** If there is no control and source file, the jobs that generate the control and source file have not run. **These jobs are:** **INTRADAY:** FOLDER: MX_EOD_REP_EXTRACT_PROD PS_CMT_OND_SA_WEEK PS_CMT_OND_LN_WEEK **EOD:** FOLDER: MX_INTRA_REP_EXTRACT_PROD PS_CMT_EOD_LN PS_CMT_EOD_SA If the jobs above have not run (depending if intraday or eod error), reach out to the Murex Platform Environment team to determine why they have not run. They should be able to give an ETA which you can then give back to business users. **Once the files have been created, rerun the failing job and let business users know.**
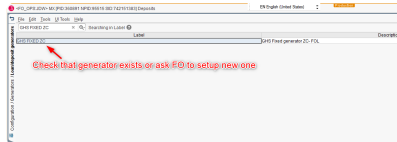
Error/Issue	Summary	Resolution
Business requests a new mapping for Auto funder		1) Ask the business user to let you know what portfolio you need to add. 2) Add or edit mappings in the TnT Mapping table: "AF_BOOK" 3) Follow the example mapping process: 3.1 Set "Source value" = a source portfolio in the file that Murex generates (See flow explanation below). Flow is: Murex → Extract → Tibco → TIS → Tibco MX Adaptor → MX Exchange. 3.2 Set "HedgeBook" and "MxHedgeBook" as the same portfolio. "HedgeBook" is sent to Murex in the feed but "MxHedgeBook" is not used. We just make them the same to not confuse anyone. Vhumbani said his integration feed does not use "MxBook and "MxHedgeBook" so both could be removed when cleaning up this feed. After all mappings complete (see screen shot below). Note: As explained earlier, "MxBook" is not used 4) Now you must update the mapping in Murex integration: client.TradesImportInterface.loanDeposits.mapInternalPortfolio

Error/Issue	Summary	Resolution
		Business Contacts: Lekwana, Karabo <karabo.lekwana@rmb.co.za> (Last person to request mapping changes was) Kennelly, Greg **The steps for portfolio lookups and mappings:** 1) Murex produces an extract which Tibco consumes. 2) Within this extract is the list of trades (loan depos) that Tibco will need to send to Murex via the TIS trade import service. 3) Tibco loads the file and for each trade, it reads the portfolio from the file and then does a search on the TnT mapping table (AF_BOOK) and searches on field "Source Value" to find the mapping that needs to be applied. Note: "Source Value" on TnT therefore needs to match the portfolio in the file else Tibco wont find the mapping. 4) Now that Tibco located the mapping entry (Using "Source Value") in step 3, it gets the portfolio from TnT mapping field: "HedgeBook". 5) Tibco then does a lookup to get the PHS Global Ids for the portfolios: "Source Value" and "HedgeBook" as the TIS service demands this. It sends both of the portfolios to Murex which is why both Global IDs are required. 6) Tibco then sends the loan depo trade to TIS (With the two portfolio global IDs). 7) TIS then sends the trade to a Murex Adaptor which then does the lookup of the global IDS on PHS to get the portfolio names (You have to send portfolio names into Murex when booking a trade). 7) Loan Depo booked in Murex.

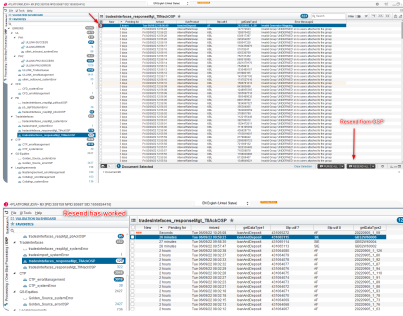| Error/Issue	Summary	Resolution
Business requests a new portfolio and this needs to be added to Informatica process in order to load into DB for BI reporting		Use T&T Mapping as the process has been amended in Informatica and streamlined to interface the T&T lookup for any portfolio addition/update. https://channel-applications/tnt/View/murexMapping/MurexMapping.aspx?action=filterMurexMappingGrid We don't need to request informatica team anymore to manually add/delete the portfolio for CMT Autofunding process.
Checking if users can see their CMT positions on Power BI		The users check their CMT positions via Power BI using this URL: https://app.powerbi.com/groups/me/apps/523673cb-4f6f-4b29-a207-68b71015d75a/reports/9c553dfc-ef99-4c6e-a0a4-428937fbfbcb/ReportSection?experience=power-bi Sample from Indran indicating loaded CMT data:

4.2 CMT Auto Funding Troubleshooting

Error/Issue	Summary	Resolution
Control-M Errors (General)	This describes the process to follow for Night Ops team when there are control-M failures	1. Control-M Alert sent to Night Ops Team. 2. Night Ops check the details in control-M on the "Output" or "Log" tab to get more information about the error. 3. If the error indicates a Murex file is missing, notify the Murex extractions team and CC Murex integration team and business users. 4. If the error looks like a technical Informatica error, notify the Informatica admins and CC Murex extractions team, Murex integration team and business users. 5. If the error looks like a technical Control-M error, notify the Tibco admins and CC Murex extractions team, Murex integration team and business users. 6. If the error indicates a Calypso file is missing, notify the Calypso team and CC Murex integration team and business users. Email contacts: See the Birdsview support wiki ("CONTACT DETAILS" table) for contact details. See: "Murex Platform Extractions Team", See: "CMT Business Users"

Error/Issue	Summary	Resolution
Murex NACK: Invalid Generator Mapping	This happens when there is a generator mapping missing for a trade contained in the Auto funding CSV file (generated by Informatica).	**1)** Get the trade details for the missing generator. Get this from TnT by looking for the payload sent to Murex. **2)** Send an email **TO:** Kennelly, Greg Greg.Kennelly@rmb.co.za[3]; Ismail, Aslum Aslum.Ismail@rmb.co.za[4] **CC:** The Murex Platform FO Team. See our contact list on the main wiki support page. **CC:** Murex Platform Integration Team In the email, attach the payload from Tnt that was sent to Murex. (This will have the trade details so that they know what generator needs to be setup). See example screen shot below. In the email, Ask them to please setup the generator or send you the name of the generator for the failed trade. You will then setup the generator mapping in the mapping table: client.TradesImportInterface.loanDeposits.generatorMapping Example of payload to attach to email: **3)** Setup generator mapping. See screen shots below. Get the currency for the mapping from the payload retrieved from TnT: **4)** Check that the generator name you mapped does actually exist! - If it does not, reach out to FO team as the name they gave for the generator might be incorrect. **5)** Resend the failed trade from the OSP:

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3. mailto:Greg.Kennelly@rmb.co.za
4. mailto:Aslum.Ismail@rmb.co.za

Error/Issue	Summary	Resolution

4.3 CMT Control-M Jobs

EOD folders contain the SOD (Start of day files)

OND (on demand) contain the intraday files.

File name dates: If the trading system run date = 20th and the current server system date is the 21st, the following is true: Murex SOD files will contain 20th (Trading System Run Date) in their file name on the 21st (Server Sys date) and Calypso SOD files will contain the 21st (Server Sys Date) in their file name on the 21st (Server Sys Date).

Frequency of jobs: Mon - Fri

Source?	Control-MJ Job Name	Source Name/ Extract Name	Run Date & File Name	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Calypso G1	RUN_CMT_CALYPSO_SOD	NXT_Cashflow_G1_M-D-YYYY.csv	Server Sysdate	06h30 (1)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_EOD	CMT_CALYPSO_ZA_SOD	N/A	Archive	CMT DB/ GM_FIM_Gather (DB)
Calypso FX	RUN_CMT_CALYPSO_SOD	NXT_Cashflow_FX_M-D-YYYY.csv	Server Sysdate	06h30 (1)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_EOD	CMT_CALYPSO_ZA_SOD	N/A	Archive	CMT DB/ GM_FIM_Gather (DB)

Source?	Control-MJobName	Source Name/ Extract Name	RunDate &FileName	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Murex ZA SOD	RUN_CMT_MUREX_SA_SOD	CMT EOD SA_YYYYMMDD.csv	Trading SystemRundate	02h00-05h30 (1)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_EOD	CMT_MUREX_ZA_SOD	N/A	Archive	CMT DB/ GM_FIM_Gather (DB)
Murex LN SOD	RUN_CMT_MUREX_UK_SOD	CMT EOD LN_YYYYMMDD.csv	Trading SystemRundate	02h00-05h30 (1)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_EOD	CMT_MUREX_UK_SOD	N/A	Archive	Antium/ PhoenixIntegrations (DB)

Source?	Control-MJ Job Name	Source Name/ Extract Name	Run Date & File Name	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Calypso Intraday	RUN_CMT_CALYPSO_INTRADAY	NXT_Cashflow_Today_G1_M-D-YYYY.csv	Server Sysdate	08h00 - 18h00 (every hour) 14h00 - 16h00 (every 20 min)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_OND	CMT_CALYPSO_ZA_INTRA	N/A	Archive	CMT DB/ GM_FIM_Gather (DB)

Source?	Control-MJobName	Source Name/ Extract Name	RunDate & FileName	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Calypso Intraday	RUN_CMT_CALYPSO_INTRADAY	NXT_Cashflow_Today_FX_M-D-YYYY.csv	Server Sysdate	08h00 - 18h00 (every hour) 14h00 - 16h00 (every 20 min)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_OND	CMT_CALYPSO_ZA_INTRA	N/A	Archive	CMT DB/ GM_FIM_Gather (DB)

Source?	Control-MJob Name	Source Name/ Extract Name	Run Date & File Name	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Murex ZA Intraday	RUN_CMT_MUREX_SA_INTRADAY	CMTONDSA_YYYYMMDD.csv	Server Sysdate	07h00 - 18h00 (Every hour)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_OND	CMT_MUREX_ZA_INTRA	N/A	Archive	CMT DB/ GM_FIM_Gather (DB)

Source?	Control-MJobName	Source Name/ Extract Name	RunDate & FileName	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Murex LN Intraday	RUN_CMT_MUREX_UK_INTRADAY	CMT OND LN_YYYYMMDD.csv	Server Sysdate	07h00 - 18h00 (Every hour)	/mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ Extraction/CMT/ CMT_OND	CMT_MUREX_UK_INTRA	N/A	Archive	Antium/ PhoenixInt egrations (DB)

Source?	Control-MJ Job Name	Source Name/ Extract Name	Run Date & File Name	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)
Aut of un der	RUN_CMT_AUTOF_SOD Dependencies: **Murex Job:**	V_CMT_Autobooker_ZA_sod (DB View queried by Auto funder)	Trading System Rundate	08h00 (1)	GM_FIM_Gather (Auto funder obtains is data from the CMT database - This data is populated when the Calypso and Murex SOD files run at 06h30 and +-02h00 respectively). **Important:** The Calypso and Murex SOD files are run at same times on Sat morning (Fridays trades) as these files are the SOD files for Mondays Auto funder job (this job). Therefore Night Ops must check that Saturdays SOD jobs pass else Monday Mornings Auto funding job will fail. **Therefore in summary,** the Auto funding job runs only Mon to Fri. The Mon run uses the SOD/EOD files produced on Saturday morning (Fridays trades).		While processing auto funding file created here by Informatica: /mnt/rmb-ppr-nas01/ FileStageProd/ MUREX/PROD/ interfaces/ CMTAutoFunder ... and is then moved to "Archive" folder under same folder when Auto funding job completes. TODO: Does Calypso consume from this folder?	Archive	FO_Auto_Funder_date .csv (FILE)

Source?	Control-MJobName	Source Name/Extract Name	RunDate&FileName	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archivefolder	server/db or file (Target ouput)
	RUN_CMT_MUREX_SA_SOD **Calypso Job:** RUN_CMT_CALYPSO_SOD								

Source?	Control-MMJobName	Source Name/ Extract Name	Run Date & File Name	Time of Job (Interval)	Directory or DB	Target Table	Target Folder	Archive folder	server/db or file (Target ouput)

4.4 **MM Go Live:**

1. Murex now consumes an auto funder file. TODO: Check if Calypso still consumes an auto funder file for products still on Calypso.

2. With Money Market Go Live, loan deposits products will no longer be in the Calypso Auto Funding file but move to the Murex auto funding file.

3. In the event that the auto funding file cannot be consumed by Murex, follow the process in the doc + template attached below. Greg Kennelly, Lesley Wright and Dianne is aware of this process

AutoFunder Multi Booking Template.xlsx[5]

Perform MultiBooking Trade Capture.docx[6]

Change that Lesley asked Indran to investigate:

"Hi Indran,

We are looking at the resilience process for booking the Loans/depos in MX if there are technical issues in the Autofunder process.

The process would involve retrieving the Cashflow file and uploading to a template to follow the Multibooking process in MX. There is a step that would need a filter on Zero cashflows and we were wondering if the zeros could be filtered out up front in Informatica."

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5. https://1confluence.fnb.co.za/download/attachments/702873532/ AutoFunder%20Multi%20Booking%20Template.xlsx?api=v2&modificationDate=1633933237000&version=1
6. https://1confluence.fnb.co.za/download/attachments/702873532/ Perform%20MultiBooking%20Trade%20Capture.docx?api=v2&modificationDate=1633933288000&version=1

4.5 DB Connections:-

CMT DB - GCB-RBGMPMISSQL.rmb.co.za

LONDON - Antium

rmb user:- S_INFA_CMT_USER

password:- encrypted in Informatica

4.6 **Control-M**

Smart Folder Name :- RMB_MRX_CMT_TOOL

Application:- GM_MUREX_CMT_TOOL

Sub Application:- GM_MUREX_CMT_TOOL

Out conditions

Calypso SOD - **IN**
RMB_CAL1857330-OK

Calypso Intraday - **IN**
RMB_CAL1857329-OK

Murex SA SOD - **IN**
GM_MX_PS_CMT_EOD_PROD-OK

Murex SA intra - **IN**
GM_MX_PS_CMT_OND_SA_PROD-OK

Murex UK SOD - **IN**
GM_MX_PS_CMT_EOD_PROD-OK

Murex UK intra - **IN**
GM_MX_PS_CMT_OND_LN_PROD-OK

INFA AUTOBOOKER - **OUT**
GM_MX_INFA_CMT_EOD_PROD-OK

4.7 Job execution:-

Calypso SOD :- Calypso will run start of day file at 6h30am,

Murex SOD :- Murex start of day job will run at +- 2am - 5h30am depending on the progress of the Murex EOD schedule

Autofunder job will run at 8am and has a dependency on Murex SA SOD and Calypso SOD.

Calypso Intraday :- Calypso intraday will start running at 8am, and every hour until 6pm, The special interval for 20 minutes will start from 2pm until 4pm.

Murex Intraday :- Murex intraday will start running from 7am until 6pm.
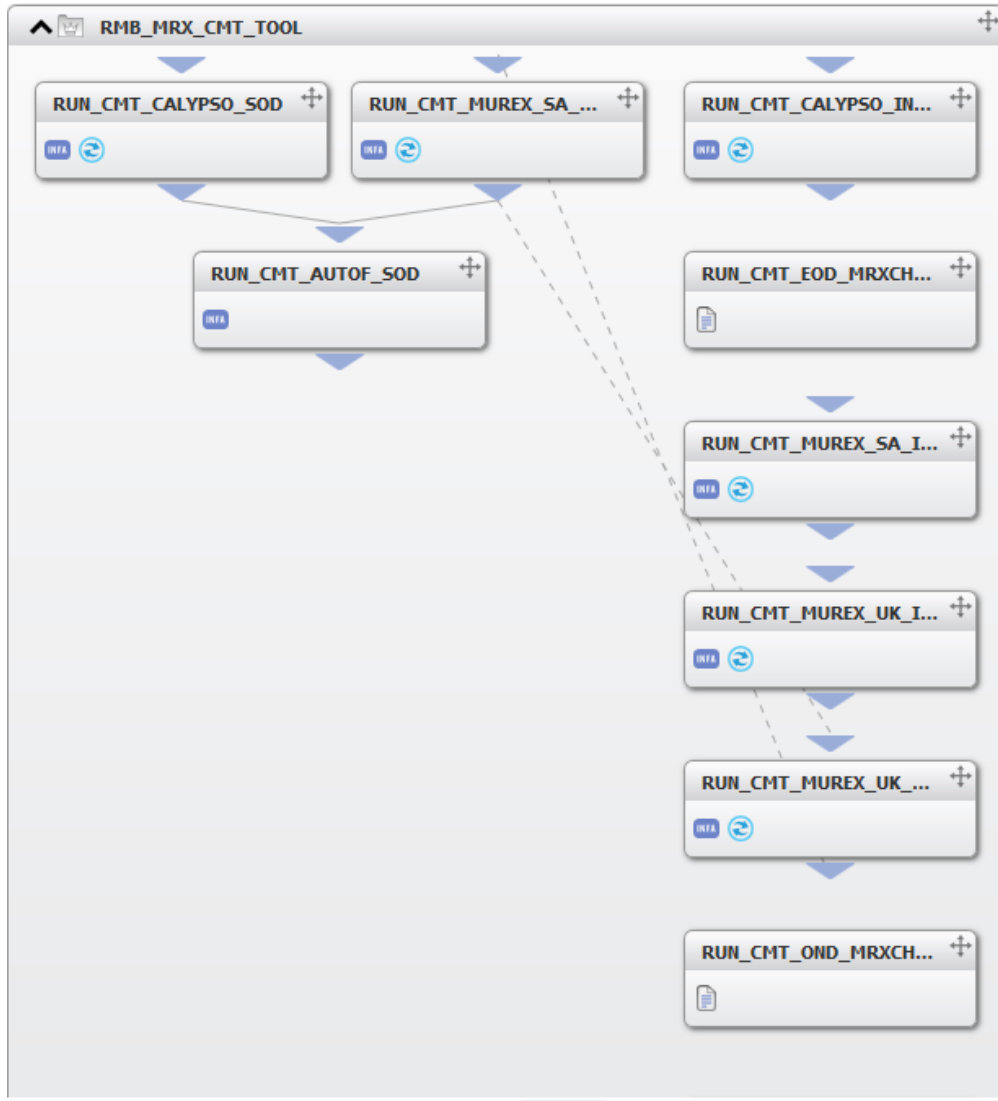
4.8 *CLSTRUCT ADDED TO CMT PROJECT BELOW:-*

LINK :- NXT_CMTool_CL_STRUCT_Operational_Spec[7]

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7. https://1confluence.fnb.co.za/spaces/MKB/pages/703169106/NXT_CMTool_CL_STRUCT_Operational_Spec

4.9 **BI Front -end view - CMT Tool**

https://app.powerbi.com/groups/me/apps/523673cb-4f6f-4b29-a207-68b71015d75a/reports/
9c553dfc-ef99-4c6e-a0a4-428937fbfbcb/ReportSection

4.10 Informatica jobs and folder Info

Infa Folder : - CMT_TOOL

wf_m_cmt_report_autobooker_sod
wf_m_cmt_stg_Calypso_Expected_cashflows_Intraday
wf_m_cmt_stg_Calypso_Expected_cashflows_SOD
wf_m_cmt_stg_murex_SA_Intraday
wf_m_cmt_stg_murex_SA_SOD
wf_m_cmt_stg_murex_UK_Intraday
wf_m_cmt_stg_murex_UK_SOD

5 Error Management Process

User reports that no data showing on BI User report

Greg Kennely normally notifies us of this problem

Possible Causes:

1. BI Tool is not refreshing its data from the database that the Informatica job writes to.

    1.1 In this case, check with the BI Team. Group is XXXXX

    1.2 sdfsdf

1. Informatica not running

5.1 Informatica Exceptions

1. Outcondition available but no file produced- job will not execute but will trigger an error condition for Platform support to investigate.
2. Outcondition available but wrong file produced- job will not execute but will trigger an error condition for Platform support to investigate.

5.2 Control M exceptions

1. No Outcondition received - job will not execute.
2. The status in the output window should be this :-

    *** WORKFLOW STATUS CHANGES ***
    $DATETIMESTAMP: Workflow status changed to RUNNING
    $DATETIMESTAMP: Workflow status changed to SUCCEEDED

3. On error it will say FAILED, then follow steps below. **(This check applies to Intraday (OND) and EOD)**

    a. Check if file was produced by MUREX/Calypso in Archive directory ***/mnt/rmb-ppr-nas01/ FileStageProd/MUREX/PROD/Extraction/CMT/CMT_OND/ARCHIVE/***

    b. Check time of file, if current file move it back into this directory ***/mnt/rmb-ppr-nas01/ FileStageProd/MUREX/PROD/Extraction/CMT/CMT_OND/***, the job will auto run.

    c. If no current file in Archive then MUREX/Calypso failed to produce file but generated an out condition, escalate to Murex/Calypso/Support team (Info below).

    d. Folders above are :- Intraday folder - CMT_OND, Start of day folder CMT_EOD.

4. Rerun process is the same as above, just drop the current file in the processing folder and the automated job will run.

5.3 **List of contacts**

Team	Name	Number	Mnemonic	email address
Calypso	Ahmed Rassas	+21621307057	HDA	Ahmed.Rassas@rmb.co.za[8]
Calypso	Matthew Jardine	+27112828394	MJN	matthew.jardine@rmb.co.za[9]
MUREX	Platform Support team			DLRMBPlatformSupport@rmb.co.za[10]

5.4 Manual Order - Control M Prod (fusion)

- On control M make sure all previous jobs are deleted.
- Order for current date roll ODATE
- Jobs will automatically follow sequence.

5.5 Manual Order - Informatica Prod

- On control M failure (system down) only
- Run Informatica jobs in this order:-
- wf_m_cmt_stg_murex_SA_SOD
- wf_m_cmt_stg_Calypso_Expected_cashflows_SOD
- wf_m_cmt_report_autobooker_sod

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8. mailto:Ahmed.Rassas@rmb.co.za
9. mailto:matthew.jardine@rmb.co.za
10. mailto:DLRMBPlatformSupport@rmb.co.za

- wf_m_cmt_stg_murex_UK_SOD
- wf_m_cmt_stg_Calypso_Expected_cashflows_Intraday
- wf_m_cmt_stg_murex_SA_Intraday
- wf_m_cmt_stg_murex_UK_Intraday

6 Account Management

CMT SA	
Username	RMB-NT\S_INFA_CMT_USER
account type	AD
INFA CONNECTION NAME	MS_CMTTOOL
db info	GCB-RBGMPMISSQL,4082
Database	GM_FIM_Gather
informatica odbc entry	CMTTOOL_GATHER
Pam change required	**YES**

CMT LN	
Username	S_INFA_CMT_USER
account type	Native
INFA CONNECTION NAME	MS_CMT_LON
db info	lon-epmsqlpv.rmbi.com[11],1433
Database	PhoenixIntegrations
informatica odbc entry	CMTTOOL_LONDON
Pam change required	**NO**

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11. http://lon-epmsqlpv.rmbi.com

AUTOFUNDER TNT	
username	S_MUREX_INFA_PROD
account type	Native
INFA CONNECTION NAME	TNT_NXT
db info	rmb-dpr-tibco-bw.rmb.co.za[12]:1530/tibcoprd
Database	rmb-dpr-tibco-bw.rmb.co.za[13]:1530/tibcoprd
informatica tns entry	TIBCOPRD
Pam change required	NO

N.B.
IF PAM CHANGE=YES
THEN PASWORD MUST BE CHANGED ON PROD - WORKFLOW MANAGER CONNECTIONS (INFA CONNECTION NAME)
AS WELL AS PAM

See Below for Informatica WF Manager pic.

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12. http://rmb-dpr-tibco-bw.rmb.co.za
13. http://rmb-dpr-tibco-bw.rmb.co.za
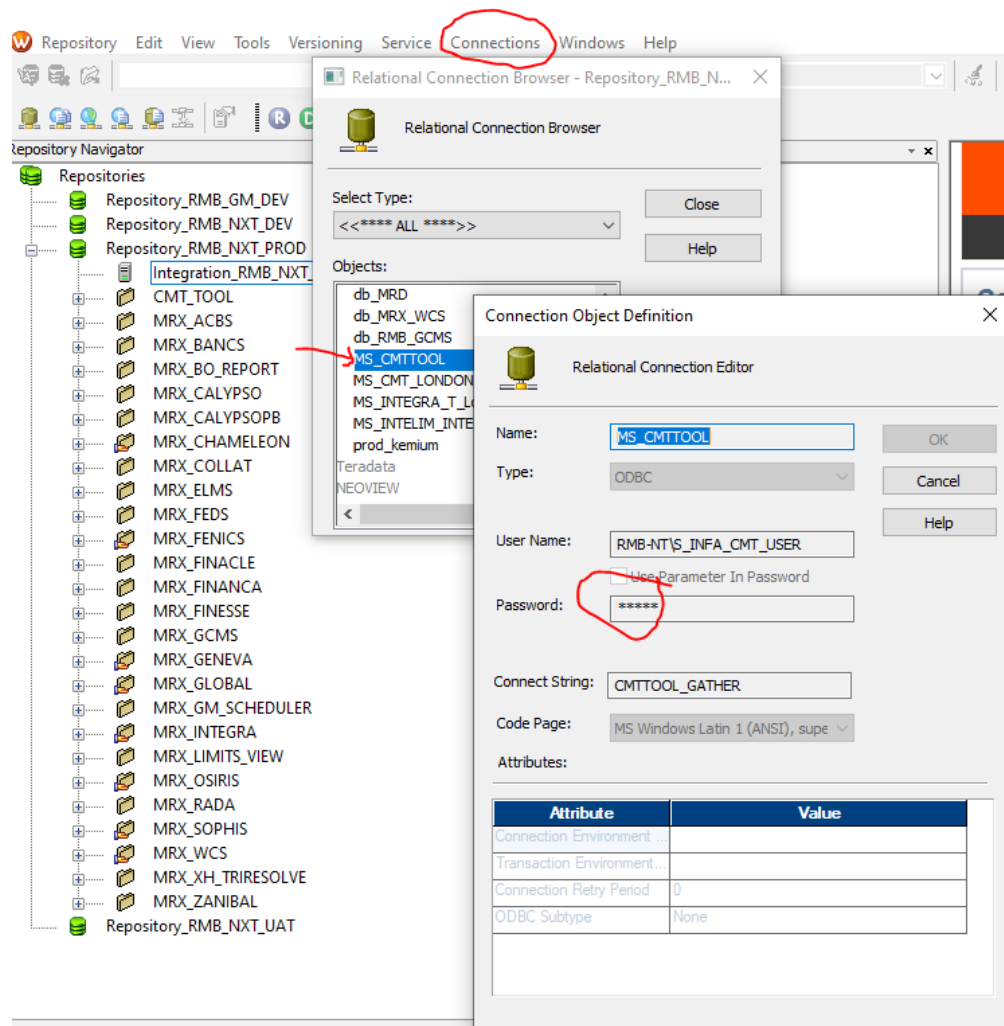
7 **References/Links**

Informatica Wiki : - Informatica[14]

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14. https://1confluence.fnb.co.za/spaces/MKB/pages/703168691/Informatica