Knowledge Base

Exaquantum/ARA

CAMS Interface Troubleshooting

KB-0025-22

Document Summary	
Article Type	Knowledge Base
Products Affected	Exaquantum/ARA
Versions Affected	All versions of Exaquantum/ARA using Exaquantum ARA/CAMS Interface
Function Affected	Exaquantum/ARA CAMS Processing
Available Resolution	N/A
Audience	Administrators of Exaquantum/ARA
Summary	How to investigate basic CAMS errors in processing
Review Date	Document to be reviewed before August 2024

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Chapter 1 Introduction

The purpose of this document is to show Administrators of Exaquantum/ARA how to investigate errors that relate to the CAMS interface in Exaquantum/ARA.

1.1 Audience

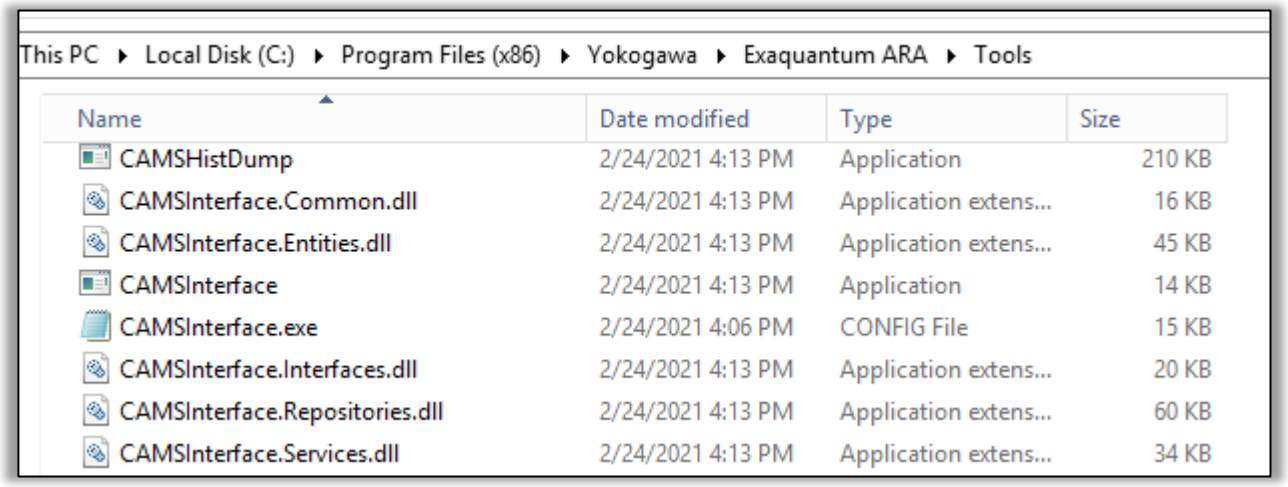
This guide is intended for system administrators of Exaquantum/ARA.

Chapter 2 Exaquantum/ARA CAMS Interface

The Exaquantum/ARA CAMS Interface collects alarm data from a ‘CAMS for HIS’ server, and makes it available on the Alarm server in the CAMS output_Folder.

2.1 Location of CAMS Interface.exe on the server

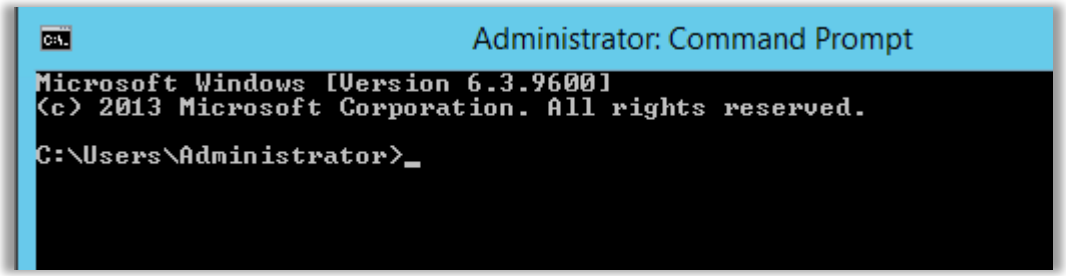
The Exaquantum/ARA CAMS interface is located in the install directory of ARA in the Tools folder.



The application executable and the configuration files are in the same folder we will use both in this document.

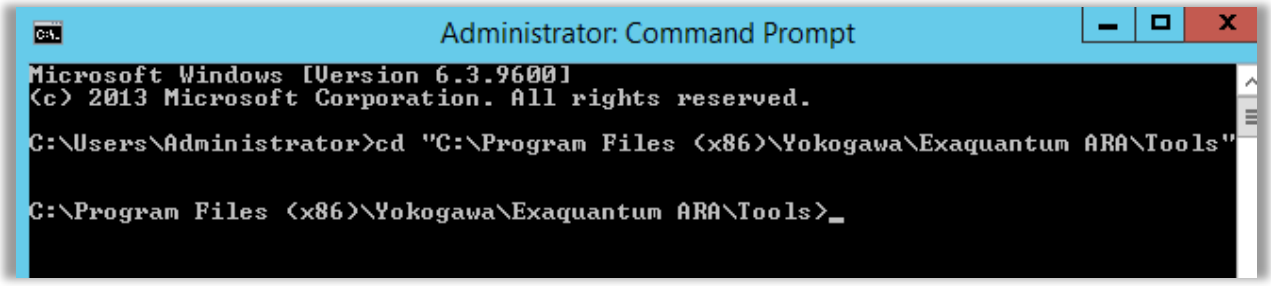
2.2 Running the Dump tool mannually

To run the CAMS dump tool, log on as an administrator and then run the Command prompt on the server as Administrator, this allows full permission to run the tool without error.

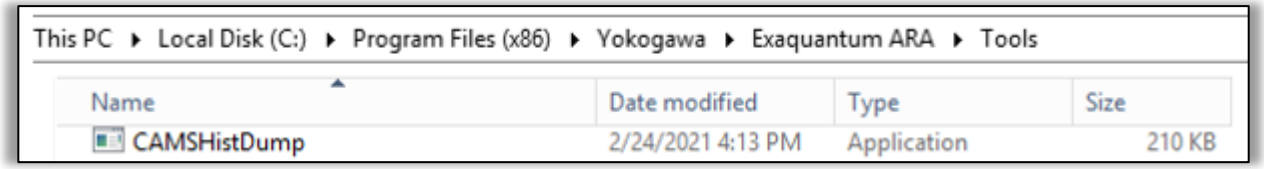


Using the Change directory command (CD) navigate to the tools folder as mentioned in section 2.1 of this document. The command wil look like the following:

CD “C:\Program Files (x86)\Yokogawa\Exaquantum ARA\Tools\”



Once in this location a command line is required run the CAMSHistDump tool.

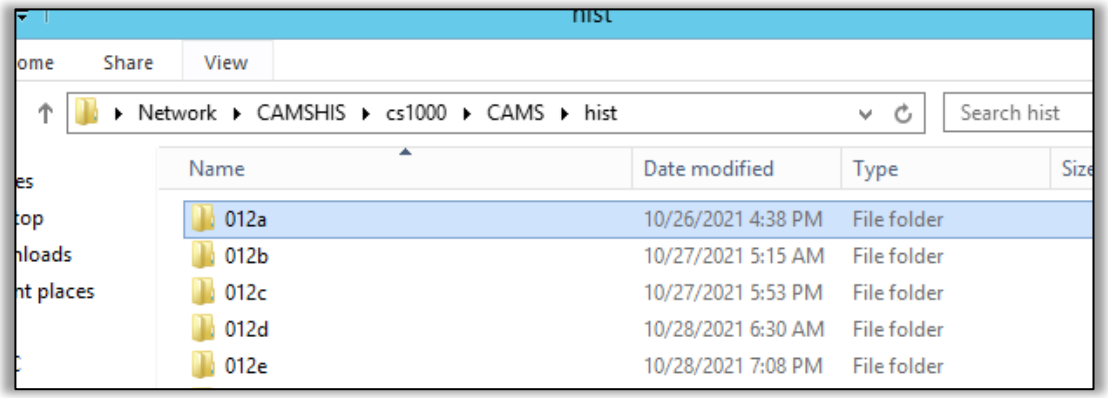


The following command line is used:

CAMSHistDump.exe -I "\\HIS0164\cs1000\CAMS\hist" -F "C:\test1.csv” -U “2021/11/06/13-2021/11/06/14”

The command above is broken down into three colours for each individual item they are as follows.

CAMSHistDump.exe -I "\\HIS0164\cs1000\CAMS\hist":
This is the CAMS dump folder location on the CAMS server.

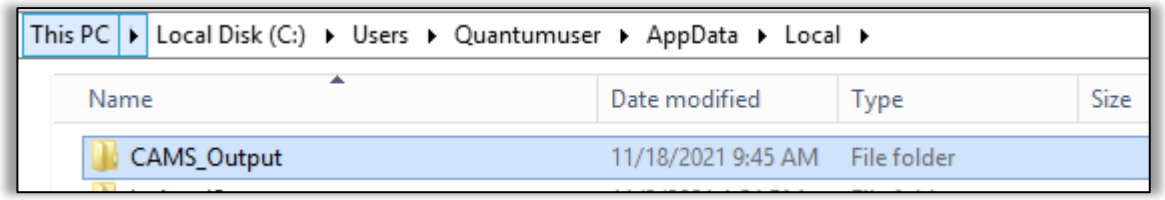


In the above screen shot the CAMS server navigated to is called CAMSHIS.
The CAMS and Hist folders need to accessable for the tool to process the raw data from CAMS.

-F "C:\test1.csv"
This is where the file is saved to on the alarm server it contains the converted data,

When the CAMS interface is run automatically this location is set to the default location in the Temp folder on the Alarm server called CAMS_Output.

This can be navigated to on the alarm server as per below image.
The folder permissions may need to be changed to allow hidden items to be viewed.
This is done in windows explorer.



For this Knowledge base article we have used the default C drive. To add the test CSV

-U "2021/11/18/09-2021/11/18/10"

The timescale used, is Format From Time - Until Time (Year/Month/Day/Hour-Year/Month/Day/Hour)

Below is the finished command to run the CAMS Dump Tool.

```
C:\Program Files (x86)\Yokogawa\Exaquantum ARA\Tools>CAMSHistDump.exe -I "\\CAMS
HIS\CS1000\CAMS\hist" -F "C:\test1.csv" -U "2021/11/18/09-2021/11/18/10"
```

Items to take into account when running the tool manually:

- Use the timescale command -U as leaving it out will run the dump tool and retrieve all cams data on server, this will take an indefinite period of time and cause job to fail as it will run out of resources

Chapter 3 CAMS Error logging on Alarm Server

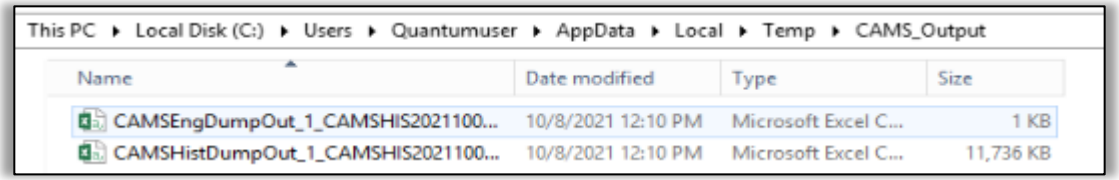
When the CAMS interface errors there are several places to retrieve the error logs and review the error. This chapter reviews the error logs that can been seen and retrieved if the CAMS update job fails.

3.1 CAMS dump log

This dump log is in the temp directory of the server. It can be navigated to by typing %temp% into a windows explorer URL.

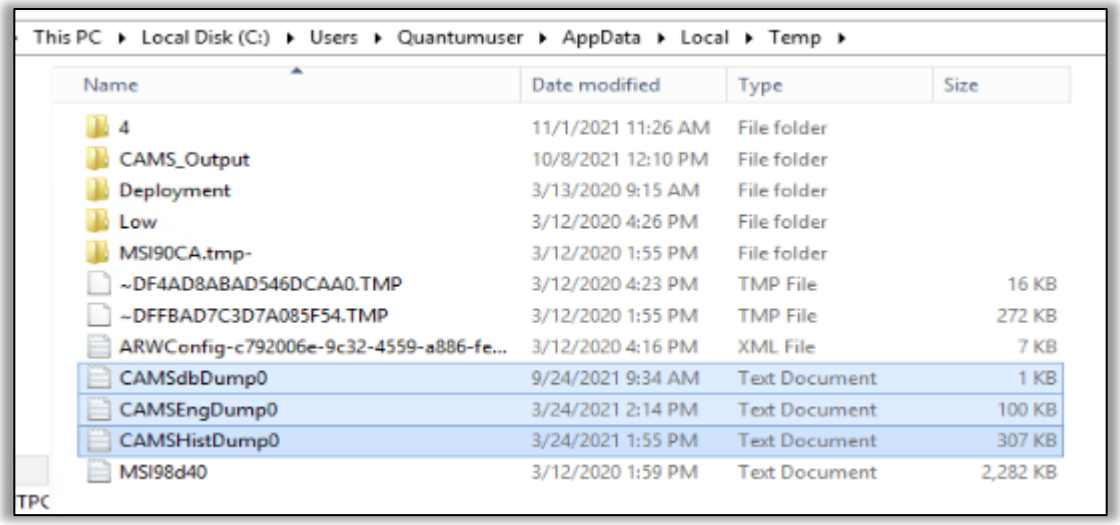
This opens the temporary folder of the current logged on user.

The CAMS output will be under the temp folder of the SQL Server Agent user. In legacy, this will be, by default, Quantumuser.

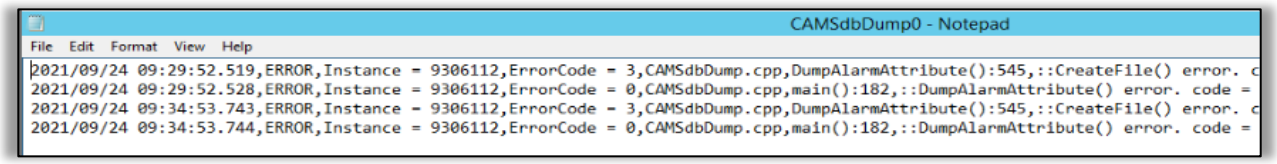


If the CAMS update has errored there will also be a CAMS dump log located in temporary folder.

They are highlighted below.



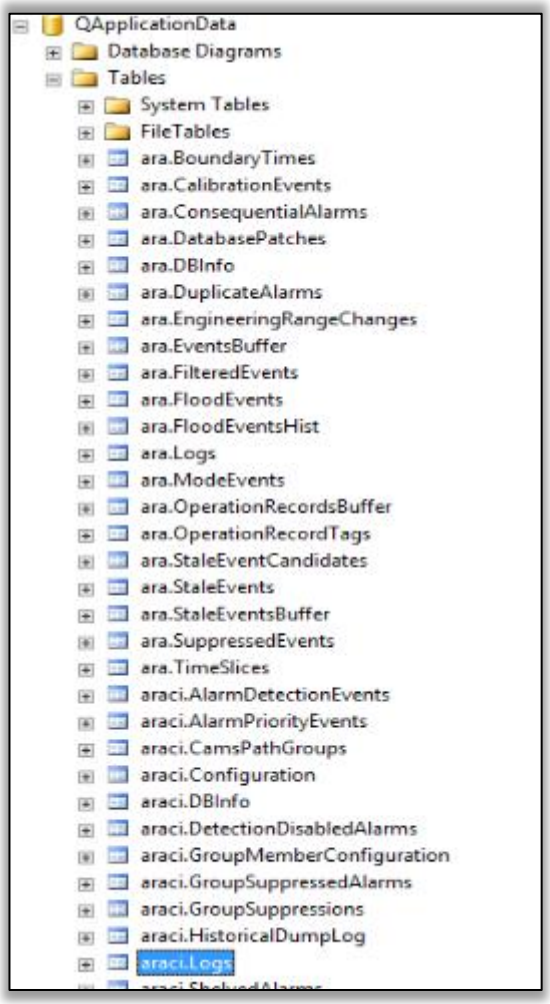
The CAMS Dump log shows all attempts to run the tool and outcome.



There are error codes for CAMS failures and also a brief explanation of what the update job was trying to do when it failed.

3.2 ARACI.logs

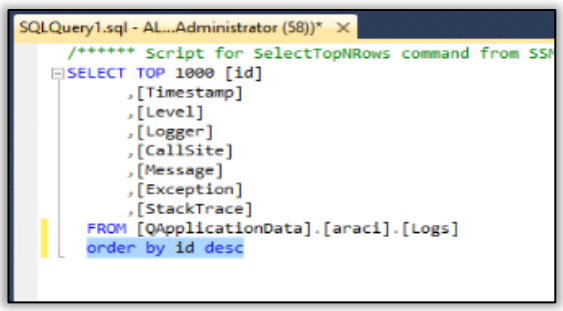
The ARA CAMS interface logs are located in Sql Studio under the QApplicationData database. These are enabled on install by default.



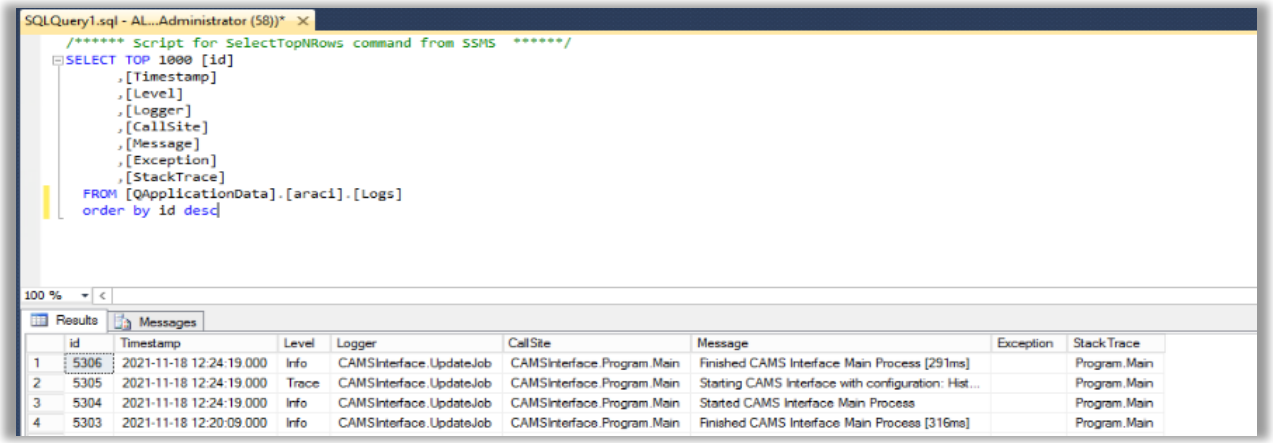
Right click on the table and select top 1000 rows of data

Once open it is best practice to order the data by the id column then descending, this will show the latest errors on the server relating to the CAMS interface update.

Add the lines of text as highlighted below and select execute on tool bar of SQL studio to run.



When the query is executed, it will show a set of logs that show each CAMS update that has been run as part of the ARA update job.



	id	Timestamp	Level	Logger	CallSite	Message	Exception	StackTrace
1	5306	2021-11-18 12:24:19.000	Info	CAMSInterface.UpdateJob	CAMSInterface.Program.Main	Finished CAMS Interface Main Process [291ms]		Program.Main
2	5305	2021-11-18 12:24:19.000	Trace	CAMSInterface.UpdateJob	CAMSInterface.Program.Main	Starting CAMS Interface with configuration: Hist...		Program.Main
3	5304	2021-11-18 12:24:19.000	Info	CAMSInterface.UpdateJob	CAMSInterface.Program.Main	Started CAMS Interface Main Process		Program.Main
4	5303	2021-11-18 12:20:09.000	Info	CAMSInterface.UpdateJob	CAMSInterface.Program.Main	Finished CAMS Interface Main Process [316ms]		Program.Main

Note: The **level** column will denote if there has been an error and the **message** column will display information on the error.

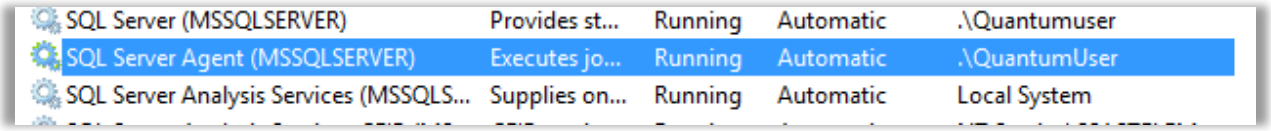
Chapter 4 Checking File paths and DATA in CAMS

This Chapter discusses the File path from and to the alarm server from CAMS when CAMS is in test mode or live at site.

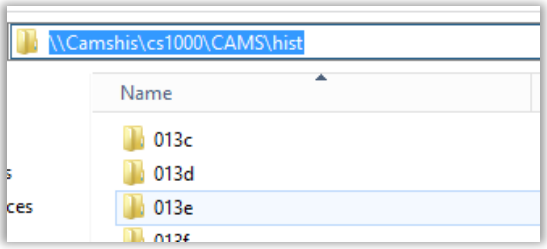
4.1 Alarm server CAMS path

Log on to alarm server as the user running the SQL agent job in services as this is the user that the CAMS interface dump tool will use to collect data from the CAMS server.

The example below shows the SQL agent being run as the Quantumuser.



Once logged in open the File Explorer and navigate to the following directory on the CAMS server. The example below shows CAMSHIS as the server's name.

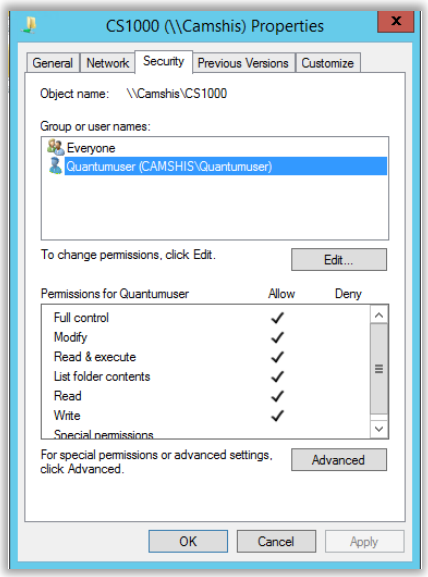


\\Sites CAMS server name\ cs1000\CAMS\hist

If at any point it cannot navigate to the next level, then there is an issue with permissions on the folders i.e., they are not shared for the user currently logged in.

log in as a local administrator to edit the permissions on these folders.

Right click on the folder and make sure the user logged in is running the SQL agent and has permissions.

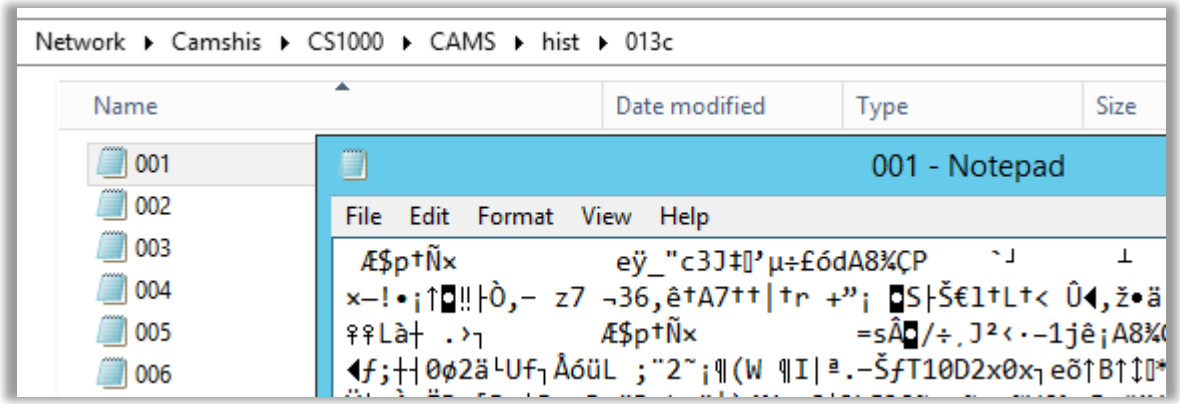


4.2 Investigating the RAW files

Once in the Hist folder is checked we need to look at the RAW files that CAMS produces. This data is read by the CAMS interface tool. It is also overwritten by CAMS monthly as CAMS is not a historian.

Navigate to the hist folder and open one of the folders. It is recommended to open RAW files in notepad.

This confirms that the user logged in has read access to the raw files.



Further checks on this folder involve creating a new notepad document and editing it then saving it to the location shown above. This proves read\write and editing permissions off the user.

4.3 Corrupt RAW files

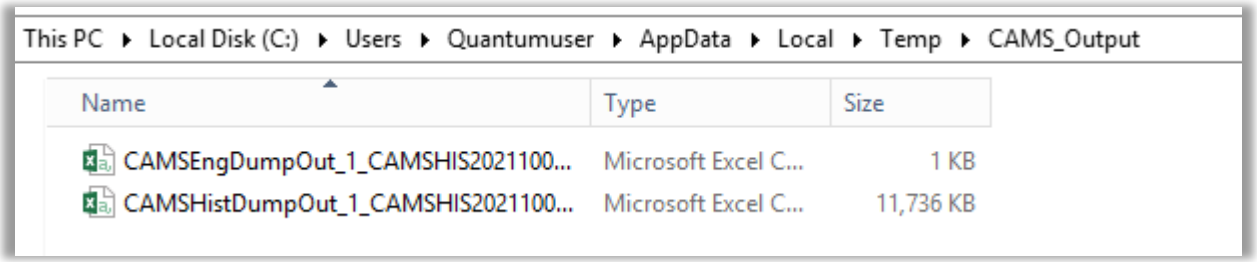
CAMS RAW files can become corrupt. CAMS will try to process them but there are errors in the CAMS Dump log. See Chapter 3 section 3.1 for information on the CAMS Dump log. The log will show which file it cannot access. A snapshot below shows the dump file error and the highlighted RAW file it cannot access.

If the RAW file is corrupt the last process time of CAMS can be moved forward by one hour to skip this file and resume ARA processing Chapter 6 of this document explains how to do this.

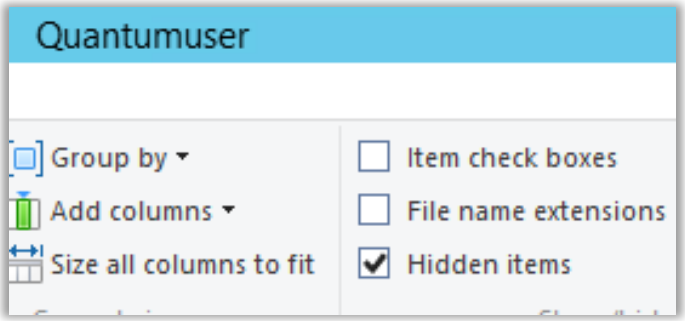
Note: CAMS RAW files are overwritten when CAMS updates so these files can be removed to allow ARA to resume processing this will involve a loss of data.

4.4 Dump file location on Alarm Server

The dump file is in the temp directory of the SQL agent user on the alarm server. To navigate to this directory, use the path shown in below screen capture.

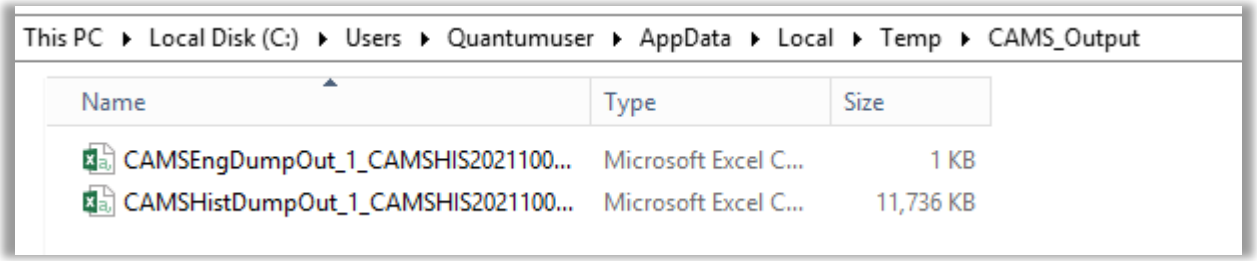


Note: The App Data folder is a hidden folder, and it is possible to edit the settings of the folder to show hidden files to review the remaining directories.



4.5 CAMS Output Folder

When ARA runs a successful update job and processes CAMS data the folder CAMS_Output is created in the temporary directory of the SQL agent user.



Logged on as the SQL agent user check the folder is accessible and exists if it does not then there may be permissions of the SQL agent user creating the folder in this location so checks on the path from the C drive need to be checked and the SQL agent user should have read and write permissions added.

When the CASS job is successful two files will appear in the location the ENG dump and the Hist Dump. Both files are required by ARA.

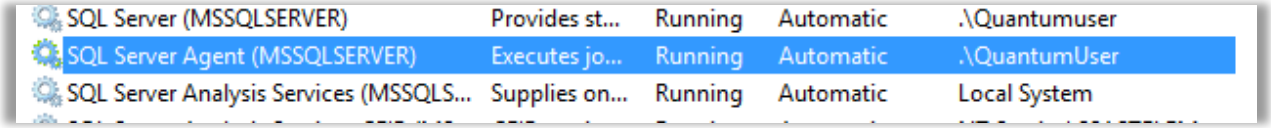
These files are overwritten every hour by the CAMS interface. If these files have become corrupt, they can be removed from this location as the new dump files will be added on the hourly process of ARA CAMS interface.

Chapter 5 SQL Agent settings

This Chapter will discuss the SQL agent located in services of the server and its association with CAMS Interface update job.

5.1 SQL Agent

The SQL agent that the ARA CAMS interface uses to run the Dump tool to collect CAMS data is located in the services of the alarm server.



The above screen shot shows Quantumuser being used as the SQL agent user.

This user will also need access to the CAMS project and Hist folder Chapter 4 of this document refers and will also need execute permissions to be given to read and write the data to ARA temp directory. Chapter 4 section 4.5 refers.

Note: If there is a CAMS error (argument error) seen in the logs this user should be changed to domain administrator and service restarted. Allow the ARA to run CAMS Dump tool automatically on the hour and I this works then the user running the SQL agent is root cause of the issue. The recommendation would be to create a user.

IM 36J40A25-01EN Exaquantum/ARA R3.30 Issue 1.0 28th January 2021 Chapter 7 section 7.5.1 explains how to create a user and what permissions the user should have access to run ARA and CAMS dump tool.

5.2 SQL Agent permissions

The SQL agent user should be in the following groups on alarm server.

Security	Group Name
Workgroup	Administrators
	QARAViewGroup
	QARAAdminGroup
	QTM_DATA_READ
	QTM_DATA_WRITE
	QTM_MAINTENANCE
Domain	Administrators
	QARAViewGroup
	QARAAdminGroup
	QTM_MAINTENANCE_LCL

In Standard Model security, the Yokogawa program files folder is locked by the Exaquantum/PIMS security tool to only allow access by certain user groups. If the default install location is used for Exaquantum/ARA or a sub folder of the Yokogawa program files directory, then ARA Administrator users will need to be added to the:

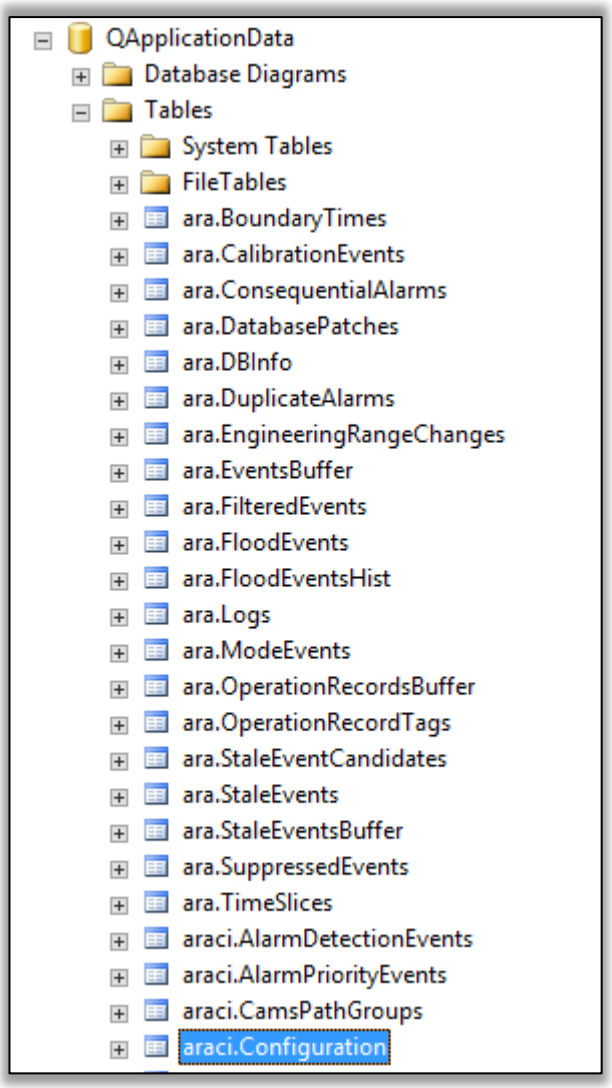
QTM_MAINTENANCE or QTM_MAINTENANCE_LCL group

Note: The SQL agent user should also be added to the CTM_Engineering group on the CAMS server.

Chapter 6 ARACI Configuration table

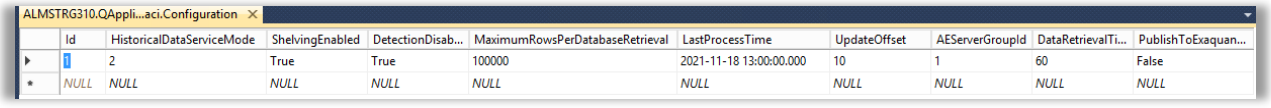
This Chapter discusses the ARA CAMS Interface (ARACI) table in QApplicationData database of SQL server.

6.1 Araci.config table location



Right click on this table and select Edit top 200 rows option from drop down given.

The table will display as below image. There is only one line of configuration data.



ALMSTRG310.QAppli...aci.Configuration

	Id	HistoricalDataServiceMode	ShelvingEnabled	DetectionDisab...	MaximumRowsPerDatabaseRetrieval	LastProcessTime	UpdateOffset	AEServerGroupId	DataRetrievalTi...	PublishToExaquan...
▶	1	2	True	True	100000	2021-11-18 13:00:00.000	10	1	60	False
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

The Araci.config table shows a number of configurable items for the ARA CAMS Interface.

When investigating CAMS issues please take special note of the last processed time and maximum rows per database retrieval.

The last process time is the last time CAMS run and dumped files successfully to ARA and they should be in the CAMS_Output Folder of alarm server.

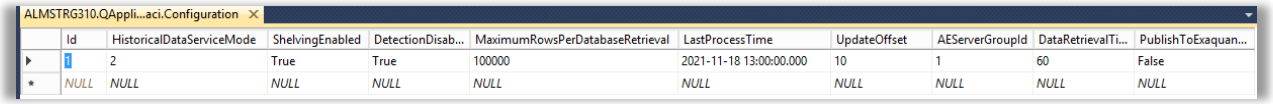
If CAMS has been down and not processed for a number of days a question may be raised by a YMX support Engineer to “move the job on by one hour.”

The change will be made to the Last Processed Time Column time stamp with a change to today’s date and as ARA is not a real-time alarm management tool use an hour of data minus 1 hour from current time.

Important Information: Make a note of the time stamp currently displayed as it may be required later on in investigation.

Once the timestamp has been updated, select the Null cell in line below to allow changes to be saved to CAMS configuration.

Allow the ARA update to run and review the araci. logs to see if successful.



ALMSTRG310.QAppli...aci.Configuration

	Id	HistoricalDataServiceMode	ShelvingEnabled	DetectionDisab...	MaximumRowsPerDatabaseRetrieval	LastProcessTime	UpdateOffset	AEServerGroupId	DataRetrievalTi...	PublishToExaquan...
▶	1	2	True	True	100000	2021-11-18 13:00:00.000	10	1	60	False
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

If successful it may have been the hour of data CAMS was trying to process in history for ARA that was causing the issue.

To investigate the corrupt timestamp run ARA CAMS interface dump tool as per chapter 2 section 2.2 of this document and use a TimeStamp and hour closer to the original time stamp that was noted earlier in the important information paragraph on this page It is then possible narrow the issue down to the hour that caused CAMS update failure.

This allows for a TimeStamp and an hour to be added to the Araci.configuration table that minimizes the loss of Data on the alarm server.

Chapter 7 Known CAMS Error Codes

This chapter shows the known error codes seen when running the CAMS interface

7.1 Error codes

Error Code	Display Item	Description
100	Argument Error	The argument is failed
101	Date Error	The date of the argument is failed
102	Input Folder Error	It gets errors at the input folder
103	File Open Error	It gets errors at the file open
104	File Read Error	It gets errors at the file reading
105	File Pointer Error	It gets errors at the file pointer
106	Packet Decompression Error	It gets errors at the packet decompression
107	Alarm Value Error	It gets errors at the contents of alarm
108	Data Write Error	It gets errors at the data writing
109	Output Folder Error	It gets errors at the output folder
110	Output File Error	It gets errors at the output file
200	Loosing Packet Error	It gets errors at the loosing packet

The codes in above table are seen in the CAMS Dump log mentioned in Chapter 3 section 3.1 of this Knowledge Base article.

The codes are also seen in Event application logs and in the araci. logs mentioned in chapter 3 section 3.2 of this Knowledge Base article.

The display item column itself can assist in most cases as shows what is failing.

Note: The 100 Argument error could be a number of issues all of which are permission based.

Chapter 8 Action on ARA job Update Error due to CAMS

8.1 Initial log collection

When investigating any CAMS issue on a server it is best practice to get the correct logs. This helps when call is raised to YMX and also helps to resolve the issue for first line support.

Logs to collect:

ARACI logs – remember to order them by date and to retrieve them all not just the top 1000 rows. (Chapter 3 Section 3.2 refers).

CAMS Dump file logs – located in temp directory of users running application collect all dump logs available in directory (Chapter 3 Section 3.1 refers).

Event Application logs – These are the standard logs from any server in Event viewer application found using the start menu of server.

8.2 Reviewing CAMS errors

Once logs are collected there will be an error code or description of error to investigate.

As per Chapter 7 of this document most error codes describe what needs to be investigated in CAMS or on the Alarm Server.

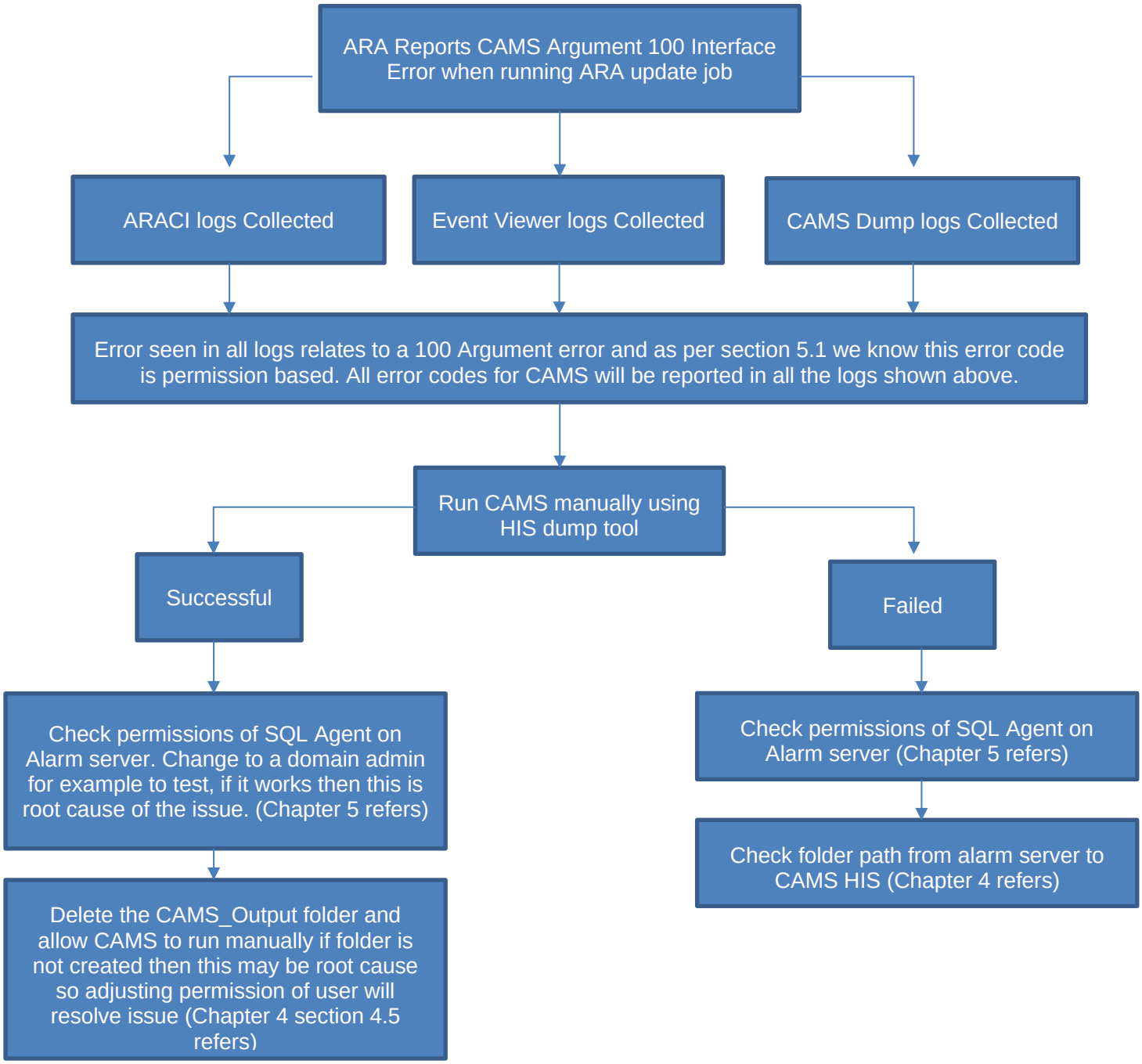
Occasionally CAMS data on the HIS can become corrupt; in this situation, the data may not be recoverable, so Exaquantum/ARA will attempt to skip this data.

As such, CAMS Interface has the ability to skip an hour when certain error conditions occur.

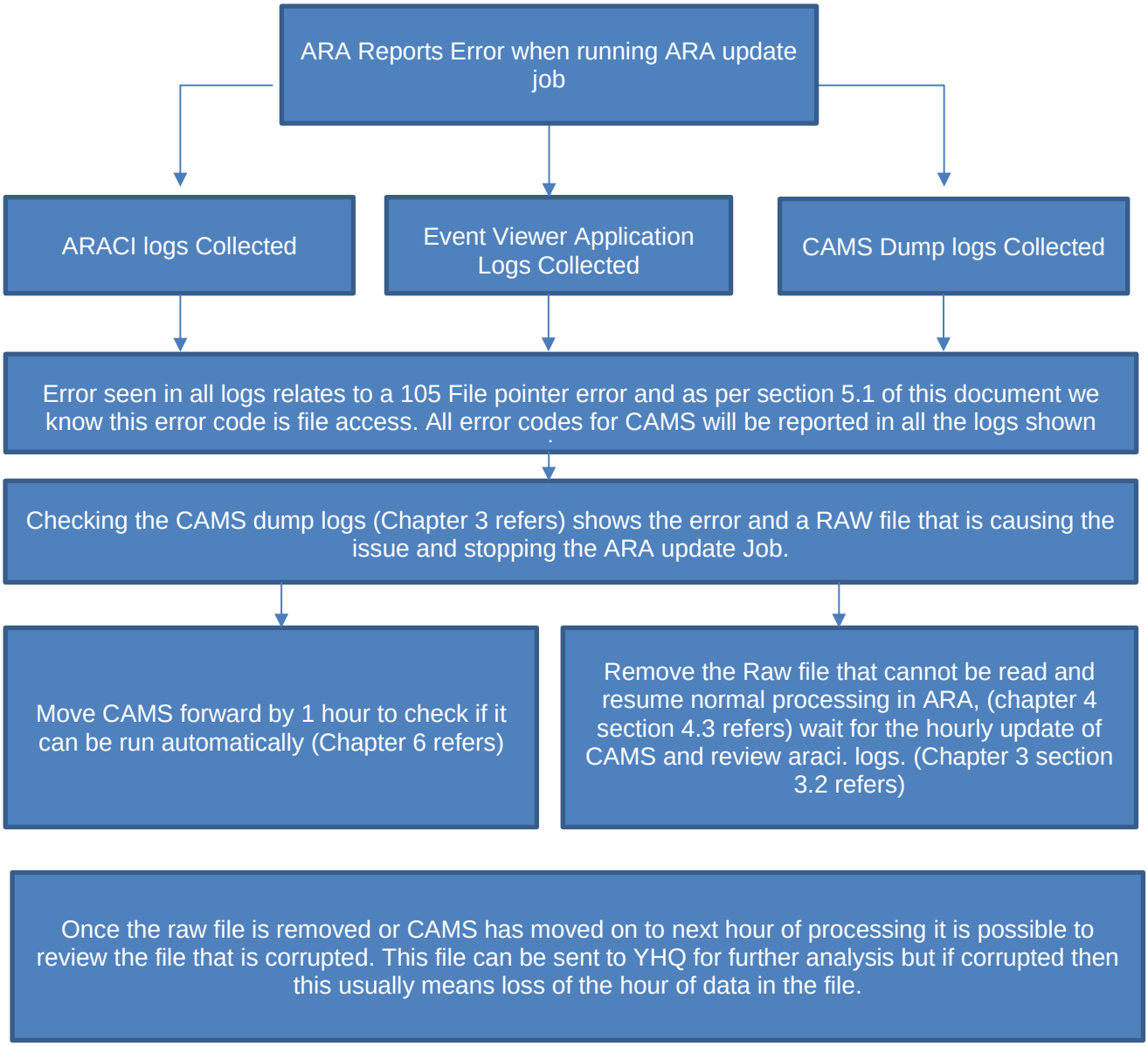
Please review the configuration in the IM 36J40A25-01EN Exaquantum/ARA R3.30 Engineering Guide Section 5.6.4 CAMS Interface Corruption Skipping for further reference.

8.3 Example of Action on a CAMS Argument Error seen in ARA

The section shows a scenario where ARA has stopped processing due to a CAMS failure. The error is a 100: Argument error when CAMS interface is run as part of the ARA update job.



8.4 Example of Action on a CAMS 105 File Pointer Error seen in ARA



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Highlights

The Highlights section gives details of the changes made since the previous issue of this document.

Summary of Changes

This is Issue 3.0 of the document related to Product Library version 5.0.

Detail of Changes

The changes are as follows:

Chapter/Section/Page	Change
Front page	Review Date updated