Triaging ERT Alerts

## Step 1:

Alert specifies a network name in the prefix: MAINNET, TESTNET, PREPROD respectively for Mainnet, TestNet and Pre-Production networks.

For example:

This is an alert from Mainnet ERT saying that the Exchange Rate Update transaction sent to the Mainnet Nodes came back with status MAINNET\_CALCULATED\_MEDIAN\_OUT\_OF\_BOUND

Text

Description automatically generated

This is a similar alert from TestNet ERT saying that the Exchange Rate Update transaction sent to the TestNet Nodes came back with status TESTNET\_EXCHANGE\_RATE\_CHANGE\_LIMIT\_EXCEEDED

Text

Description automatically generated

You can make out from the network and type of error from Name and Description under Alarm Details

## Step 2:

Types of Errors that we are alerting on [Major and more frequent ones have a \*:

* INSUFFICIENT\_PAYER\_BALANCE\*

Account 0.057 on the corresponding network doesn’t have enough balance to do the Exchange Rate File update transaction. 🡪 [Resolution](#_INSUFFICIENT_PAYER_BALANCE)

* EXCHANGE\_RATE\_CHANGE\_LIMIT\_EXCEEDED\*

The exchange rate computed is off the specified delta from the precious midnight rate on the nodes. 🡪 [Resolution](#_EXCHANGE_RATE_CHANGE_LIMIT_EXCEEDED)

* CALCULATED\_MEDIAN\_OUT\_OF\_BOUND\*

The median calculated from the retrieved exchange rates from various exchanges like bittrex, binance, okcoin ... is out of bound from the midnight rate 🡪 [Resolution](#_MedianInvalid)

* FAILED\_TO\_GET\_LATEST\_ADDRESS\_BOOK

The query to get the latest address book from the database that ERT uses [AWS RDS] failed. 🡪 [Resolution](#_FAILED_TO_GET_LATEST_ADDRESS_BOOK)

* ERROR\_BUILDING\_HEDERA\_CLIENT

Failed to build Hedera Client that we use to send the Exchange Rate File update transaction. 🡪 [Resolution](#_Error-while-building-a-Hedera-Clien)

* FAILED\_TO\_LOAD\_CONFIGURATION

Failed to load the config file that we got from AWS S3. 🡪 [Resolution](#_FailedToLoadConfiguration)

* NO\_MEDIAN\_COMPUTED

No Median is computed as there are no values to compute from. These values are retired from different exchanges.

* NO\_VALID\_EXCHANGE\_RATES\_RETRIEVED

None of the exchange APIs are working and hence we don’t have any valid exchange rates to compute a median from. 🡪 [Resolution](#_NoMedianComputed_and_NoValidExchang)

* FAILED\_TO\_GET\_LATEST\_EXCHANGE\_RATE\_FROM\_ERT\_DB

Query to get the latest midnight rate from the ERT database failed. 🡪 [Resolution](#_FAILED_TO_GET_LATEST_ADDRESS_BOOK,_)

* FAILED\_TO\_GET\_LATEST\_MIDNIGHT\_RATE\_FROM\_ERT\_DB

Query to get the exchange rate that we pushed in the last successful run from the ERT database failed. 🡪 [Resolution](#_FAILED_TO_GET_LATEST_ADDRESS_BOOK)

* CONFIG\_FILE\_NOT\_FOUND

The specified config file in the ERT lambda environment variables is not found in AWS S3. 🡪 [Resolution](#_ConfigFileNotFound)

* Failed\_After\_4\_Retries\*

Currently the max retries is set to 4 per run. We see this error log if we fail to do a successful transaction within these 4 runs. 🡪 [Resolution](#_Failed_After_4_Retries)

## Step 3:

Go to CloudWatch Logs for the appropriate lambda logs.

Mainnet: [link](https://console.aws.amazon.com/cloudwatch/home?region=us-east-1#logsV2:log-groups/log-group/$252Faws$252Flambda$252Fexchange-rate-tool-lambda-mainnet)

TestNet: [link](https://console.aws.amazon.com/cloudwatch/home?region=us-east-1#logsV2:log-groups/log-group/$252Faws$252Flambda$252Fexchange-rate-tool-lambda-testnet)

PreProd: [link](https://console.aws.amazon.com/cloudwatch/home?region=us-east-1#logsV2:log-groups/log-group/$252Faws$252Flambda$252Fexchange-rate-tool-lambda-integration)

## Step 4:

Look for the appropriate run that the alarm is thrown [ Can relate with the time the alarm has been thrown and the log generation time]

### If Alarm is for:

#### EXCHANGE\_RATE\_CHANGE\_LIMIT\_EXCEEDED

Check for the log for the first occurrence of EXCHANGE\_RATE\_CHANGE\_LIMIT\_EXCEEDED and note the Exchange rates we tried to push on that run.

Graphical user interface, text, application, email

Description automatically generated

Say this happened on 30th Nov at 7 pm.

Note the Exchange rates successfully pushed on 29th Nov at 11 pm so that we have the midnight rates for the run that got us EXCHANGE\_RATE\_CHANGE\_LIMIT\_EXCEEDED.

Validate the delta and check if it is under 25%.

Note that, if the transaction on the last midnight failed, then the midnight rates for ERT and the nodes will the different.

There are 2 ways to resolve this EXCHANGE\_RATE\_CHANGE\_LIMIT\_EXCEEDED error.

1. Wait it out. Wait until next midnight and if the transaction is successful this will automatically be resolved.
2. If you this that next midnight transaction will fail again because of high volatility in the rates, do a manual override of the midnight rate by sending an Exchange Rate File update using account 0.0.50.

#### INSUFFICIENT\_PAYER\_BALANCE

Fund the account 0.0.57 on the appropriate network.

#### CALCULATED\_MEDIAN\_OUT\_OF\_BOUND

From the logs check the values retrieved from the exchanges.

Graphical user interface, text

Description automatically generated

Check if the retrieved values make sense and are consistent with each other.

#### FAILED\_TO\_GET\_LATEST\_ADDRESS\_BOOK, FAILED\_TO\_GET\_LATEST\_MIDNIGHT\_RATE\_FROM\_ERT\_DB, FAILED\_TO\_GET\_LATEST\_EXCHANGE\_RATE\_FROM\_ERT\_DB

The Query to the ERT database on AWS RDS failed. Use DataGrip or any tool to look at the database. If needed fix the latest addressBook/exchangeRate/midnightRate record from the appropriate table. If the query is at fault, you can use the tool to run the query and debug it.

#### ERROR\_BUILDING\_HEDERA\_CLIENT

SDK might have changed and rendered the current method to build a client useless. Check with the dev team to update the code.

#### FAILED\_TO\_LOAD\_CONFIGURATION

The config.txt linked to the lambda in AWS S3 might have a data in the wrong format. Please check if the file is a valid Json.

#### NO\_MEDIAN\_COMPUTED

#### and NO\_VALID\_EXCHANGE\_RATES\_RETRIEVED

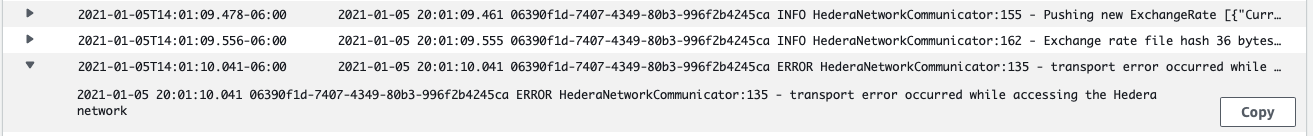
Both of these alerts are most likely to occur together. Validate from the logs that none of the exchanges sent us any valid data back. The APIs to get the exchange rates might have changed, pelase check the appropriate exchange board for updates.

#### CONFIG\_FILE\_NOT\_FOUND

Path to Config.txt might be wrong or the file might have been moved from the specified s3 bucket in the AWS Lambda environment variable. Please correct and retry.

#### Failed\_After\_4\_Retries

This error might be accompanied by any one of the above alerts. If this is triggered alone, then the most possible reason for the error is that the transaction is failed because of transport error to the hedera node.



Usually, the transaction eventually succeeds by trying on different nodes, but as we have a limit on 4 retries per run, rerunning the lambda would help. We need to increase the retry size and update the metric to look the right error message or fix the communication error between ERT and specific nodes that failed.