

DSB Production Root Cause Analysis

ADSB-39882- Production OTC ISIN REST And FIX API Connection encountering 401 Unauthorized Error

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Revision History

Version	Date	Reason
1.0	September 7 th 2024	Initial RCA draft
2.0	September 12 th 2024	Internal review and revisions
3.0	September 13 th 2024	Final revision

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IMPACT ASSESSMENT & CATEGORIZATION

Major Impact Severity Two (S2)

Start	20:47 UTC 06 th September 2024
Resolved	4:00 UTC 07 th September 2024
Total Time	433 minutes
Incident	ADSB-39882
Impact	401 Unauthorized Error on FIX and REST API Service

For details of classification of Incidents please see [Appendix 1](#) on page 5.

INTRODUCTION

This document presents the Root Cause Analysis (RCA) for the 401 Unauthorized Error encountered on FIX and REST API Service in the Production OTC ISIN service. This issue was raised on 6th September 2024 and was caused by an accidental update in one of the system administrative screens which when saved updated one of our system schema components.

This document provides an overview of the incident, findings, root cause analysis, corrective actions taken, and planned actions to prevent similar incidents in the future.

EXECUTIVE SUMMARY – FINDINGS AND ROOT CAUSE

On the 6th of September 2024, one of DSB clients reported that they were unable to connect to their Production Endpoint for OTC ISIN FIX and REST services and were encountering 401 Unauthorized errors in their transactions. The DSB investigated the incident and found that the cause of issue was due to an accidental update in our one of our administrative screens which caused an update to one of the system component schemas which impacted all production programmatic accounts having the multiple @@ format (e.g. REST@@SUBCOMPID@COMPID / FIX@@SUBCOMPID@COMPID). Users using programmatic accounts with the anna-dsb.com naming convention were unaffected by this issue.

To resolve the issue, the DSB reverted the change of the affected schema and performed a rolling restart of the application services. After the rolling restart activity, the DSB validated that the issue had been resolved and confirmed that the affected clients were able to successfully connect via their FIX and REST API accounts.

DETAILED EVENT DESCRIPTION

On the 6th of September 2024, one of DSB clients reported that they were unable to connect to their Production Endpoint for OTC ISIN FIX and REST services and were encountering 401 Unauthorized errors in their transactions. The DSB acknowledged the issue and while performing the necessary investigations we also receiving reports from other clients. Upon verifying in the logs, it was confirmed that the clients

were all experiencing the “401 Unauthorized” errors, however, some DSB clients were unaffected by the issue.

After conducting a thorough investigation, the DSB Technical Support team found that the cause of issue was due to an accidental change to an administrative screen which updated a schema in of our system components causing the API accounts having the multiple @@ format for both FIX and REST to encounter the 401 Unauthorized error when performing transactions. Programmatic accounts with the new anna-dsb.com naming convention were unaffected by this issue.

To resolve the issue, the DSB Technical Support team had to revert to the previous version of the affected schema and then perform a rolling restart of application services. At around 04:00 UTC, DSB Technical Support team had completed the service restart and validated in the logs that there were successful transactions coming in for the affected clients. Following the successful restart of services and validation, DSB Technical Support sent an updated notification informing the users that they can start transacting again.

CORRECTIVE ACTIONS TAKEN & PLANNED

#	Action	Incident/JIRA/Change/ Problem Task	Assigned To	Status	Completion Date
1	Incident raised	ADSB-39882	TS	Completed	7-Sep-24
2	DSB performed initial Login checks on FIX and REST services	ADSB-39882	TS	Completed	7-Sep-24
3	DSB checked the logs to verify the 401 Errors	ADSB-39882	TS	Completed	7-Sep-24
4	DSB had reverted the change made on the affected schema	TCM-2290	TS	Completed	7-Sep-24
5	DSB executed a rolling restart of the application service	TCM-2290	TS	Completed	7-Sep-24
6	DSB validated the API Connections by performing Login checks on FIX and REST services	ADSB-39882	TS	Completed	7-Sep-24
7	DSB coordinated with clients to confirm that they are no longer encountering the 401 error.	ADSB-39882	TS	Completed	7-Sep-24
8	DSB to ensure read-only privileges are enabled for all users.	PRB-45	DSB	Pending	

9	DSB to restrict access within admin account to minimize potential unauthorized modifications.	PRB-46	DSB	Pending	
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TIMELINE OF EVENTS

Friday, September 06, 2024 – Saturday, September 07, 2024

Time (UTC)	Description
20:47	One of the DSB clients had reported that they are encountering 401 Unauthorized errors on their production OTC ISIN FIX and REST API transactions.
21:04	DSB Technical Support has acknowledged the issue and confirmed during the initial investigation that all OTC ISIN programmatic clients appeared to be affected.
21:15	DSB Technical Support conducted further investigations to identify what is causing the errors on the API accounts.
22:42	DSB Technical Support sent out an official notification to our clients.
00:30	DSB Technical Support sent out an update notification to inform our clients that the investigation is still ongoing.
01:26	After further investigation, DSB identified that it was caused by an inadvertent change on the DSB side and that not all programmatic accounts were affected, only the multiple @@ format account names were affected.
01:30	DSB Technical Support had reverted the change made on system component schema.
02:01	DSB Technical Support sent out an update notification to inform our clients that the resolution and fix is still ongoing.
02:30	DSB Technical Support had started to perform rolling restart of the application service on the affected servers.
03:29	We have received a response from one of our clients that they were able to perform API transactions without errors.
4:00	DSB Technical Support had completed the rolling restart of application services.
4:16	DSB Technical Support sent out an official completion notification to our clients informing them that the issue should be resolved.
4:22	DSB Technical Support performed Login checks and confirmed in the logs that there were successful transactions coming in from the affected clients.
4:30	DSB Technical Support continuously monitored the FIX and REST API transactions of the affected clients.
5:06	DSB Technical Support started to receive confirmations from the affected clients that they were now able to successfully perform FIX and REST API transactions.

APPENDIX 1

Classification of Incidents

Severity	Definition
Critical (S1)	Critical production issue that severely impacts the DSB Service for all Users. The situation halts business operations and no procedural workaround exists. DSB Service is down or unavailable. Major data elements are corrupted or lost and must be restored from backup. A critical documented feature / function is not available.
Major (S2)	Major functionality is impacted, or significant performance degradation is experienced and is not a Critical Incident. The situation is causing a high impact to some Users' business operations and no reasonable workaround exists. DSB Service is operational but highly degraded performance to the point of major impact on usage. Important features of the system offering are unavailable with no acceptable workaround; however, operations can continue in a restricted fashion.
Minor (S3)	There is a partial, loss of use of the DSB Service with a medium-to-low impact on your business, but your business continues to function that is not a Critical Incident or a Major Incident. Short-term workaround is available, but not scalable.
Cosmetic (S4)	Inquiry regarding a routine technical issue; information requested on application capabilities, navigation, installation, or configuration; bug affecting a small number of users. Acceptable workaround available.

Reference: [DSB Service Level Policy 2023](#)