1 Data file checksum error

1.1 Reason message appears

The message `Data file checksum error. Possible data corruption or modification of file <filename>` appears in the Message Center when a DAT file with a missing or invalid checksum that is not currently being acquired is read for display, processing, or an integrity check. A missing checksum indicates that acquisition was interrupted before the software wrote the checksum to the DAT file. An invalid checksum indicates that the DAT file was altered or damaged after the software wrote the checksum to the DAT file.

1.2 Background

Empower stores in DAT files the raw data that chromatographic systems acquire. After an Empower chromatographic system acquires raw data, Empower generates a unique checksum within each DAT file in order to verify data integrity during a file's transmission or storage.

This message appears when Empower reads the file, verifying the checksum. Common situations include users taking data into Review or running project integrity tests. Message Center repeats the message for each DAT file with an affected checksum.

Potential causes:

In most cases, the message `Data file checksum error. Possible data corruption or modification of file <filename>` appears in one of these situations:

1. Acquisition is interrupted before the software can generate or write the checksum to the DAT file. An interruption can happen before or after data acquisition for the channel is complete.

2. If the network loses connectivity while a DAT file is automatically transferred or a user copies or moves a DAT file to a shared network drive, resulting in an incomplete copy of the DAT file.

3. If the DAT file undergoes physical changes once it is up on the file server. For example, if security software altered the file.

Note: In case of buffering, data that was previously acquired is visible. After you restore network communications, the system recovers all DAT files, replacing the incomplete ones.

1.3 Troubleshooting

The new Channel Status and Injection Status fields, added in Empower 3 SR3, help you troubleshoot data file checksum errors. For example, after a valid checksum is written to the DAT file, Empower sets the Channel Status to Acquisition Finished. In the majority of cases where this checksum error message appears, acquisition did not finish, so Empower never wrote the checksum. Thus, the channel status is not set to Acquisition Finished.

Confirm the channel status:

- If it is not set to Acquisition Finished, this is the reason for the checksum error. It could be set to Data Being Acquired or Data Incomplete.

    - If the problem occurs due to interrupted acquisition and network connectivity is not restored automatically, contact the appropriate people in your organization to restore the network. Usually, Empower recovers DAT files and replaces the incomplete ones. If the process fails, you see `Data Incomplete` in your chromatogram.

        Tip: If you have the Verify Incomplete Data in Raw Data Files privilege, you are allowed to view the incomplete data and verify it as complete.

- If the DAT files contain missing or invalid checksums, you see `Bad Checksum` in the chromatogram plot.

    Tip: If there is a checksum error post acquisition, restore a backup.