6 Project integrity error

6.1 Reason message appears

A project integrity failed message is not caused by a user deleting data using Empower software. Project integrity testing was enhanced in the Empower 3 SR3 release. This document explains how project integrity testing works in Empower 3 SR3 software.

The project integrity test fails for one of these possible reasons:

- Data is incomplete due to a detector or an instrument failure that occurred during acquisition. One of these messages appear in the **Channel Status** field in the Review chromatogram window: `No data acquired` or `Data incomplete`. The data file is present, but contains incomplete data.
- The project was backed up or you performed an on-demand integrity test while acquiring data.
- The LAC/E module lost communication with server and is in buffering mode while data was being acquired during a project integrity test.
- The project integrity test detects fewer data files (channels) than expected. A privileged user, such as a system administrator, deleted raw data files, or data files were manipulated or modified improperly during a project backup.
- Issues with the computer's hard drive caused the loss of data integrity of the data file.
- Virus activity modified the data file.
- Data files were removed or quarantined by anti-virus software.
- The *.EXP and/or *.INF file checksums differ. `Bad Checksum` message appears on the chromatogram plot in the Review window.

Testing project integrity during a backup

During project backup, the first integrity test determines whether each raw data file for that project exists and is readable without errors. The second integrity test, run on the backed-up project, verifies the checksums of the *.EXP and *.INF files and determines whether each raw data file exists and is readable without errors. Each *.dat file has a saved checksum in the header of the file, and when it is checked, the current checksum is compared to that value. The project integrity test fails if the software encounters errors with the raw data files or the checksums differ.

Testing project integrity while restoring a project

When you restore projects, a project integrity test is automatically run on each project. When restoring a project, if verification of the checksums of the *.EXP and *.INF file fail, an error occurs and you cannot restore the project. The project integrity test also reviews the checksum of each *.dat file. Each *.dat file has a saved checksum in the header of the file, and when it is checked, the current checksum is compared to that value. The project integrity test fails if the software encounters errors with the raw data files or the checksums differ.

On-demand project integrity test

When you test project integrity using the on-demand feature, the project integrity test determines whether each raw data file for that project exists and is readable without errors. It also reviews the checksum of each *.dat file. Each .dat file has a saved checksum in the header of the file, and when it is checked, the current checksum is compared to that value. The project integrity test fails if the software encounters errors with the raw data files or the checksums differ.

6.2 Background

Project integrity automatically runs when you back up or restore projects. In addition, you can perform an on-demand project integrity test on projects you can access. You can perform project integrity tests on a single project (with or without sub-projects) or multiple projects (with or without sub-projects). If you perform a project integrity test on multiple projects and you don't have access to a project, the software skips that project and its sub-projects and continues to test project integrity for those projects you can access.

The project integrity test determines if all channels are associated with a raw data file in a project, there are no errors with the raw data files, and the EXP and INF checksums match. If there is a channel that does not have an associated raw data file, the integrity test fails unless the Channel Status field for that channel is set to **No Data File Created**.

Exception: For channels that reflect `Data incomplete` when the channels are verified in Review, the project integrity for these channels passes.

Backing up projects

During project backup, the first integrity test determines whether each raw data file for that project exists and is readable without errors. The second integrity test, run on the backed-up project, verifies the checksums of the *.EXP and *.INF files and determines whether each raw data file exists and is readable without errors. Each .dat file has a saved checksum in the header of the file, and when it is checked, the current checksum is compared to that value.

Note: If you are backing up a project while acquiring data, the project integrity test fails.

Restoring projects

When you restore projects, a project integrity test is automatically run and the test result is stored in the database. When restoring a project, if verification of the checksums of the *.EXP and *.INF file fails, an error occurs and you cannot restore the project. It also reviews the checksum of each *.dat file. Each *.dat file has a saved checksum in the header of the file, and when it is checked, the current checksum is compared to that value.

On-demand project integrity test

When you test project integrity using the on-demand feature, the project integrity test determines whether each raw data file for that project exists and is readable without errors. It also reviews the checksum of each *.dat file. Each *.dat file has a saved checksum in the header of the file, and when it is checked, the current checksum is compared to that value.

Note: If you run an on-demand project integrity test while acquiring data in the project, the project integrity test fails.

Viewing the results of the project integrity test

Whenever a project integrity test is run (while backing up or restoring a project or on-demand), these actions occur:

- The System Audit Trial records whether the project integrity test succeeded or failed.
- If the test failed, a message is recorded in the message center.
- If the test failed during backup, restore, or an on-demand testing of a single project, a pop-up message appears.
- A Waters Project Integrity Report is generated, which records the project integrity test results.

When backing up projects, the result of the first project test is listed, along with all other integrity test results, in the Project Properties dialog box Integrity tab. The result of the second integrity test is recorded in the Project_Integrity.txt file, which is stored with the resulting project backup in the location you specified during backup.

Additionally, when testing the integrity of multiple projects, a "BatchBackup", "BatchRestore", and "BatchIntegrity" timestamped log file is saved in the Empower\Logs directory. This log includes the result (succeeded or failed) of the integrity test on each project.

6.3 Troubleshooting

When the project integrity test fails, the `Project Integrity Failed` message appears in the system audit trail. If project integrity failed while backing up a project, the `Project Integrity failed on backed up project` message appears in the system audit trail.

Note: You cannot resolve all project integrity errors.

To troubleshoot project integrity failed messages, perform these tasks:

- View messages in the Message Center. Messages like `Cannot read raw data file` can help you resolve the issue by identifying the missing data file.
- View the project integrity report and log files.

To view a project's integrity report:

1. Log on to Empower and open Configuration Manager.
2. In Configuration Manager, right-click a project, and then select **Properties**.
3. In the Project Properties dialog box, select the **Integrity** tab.
4. Select a report, and then click **Details**.

You can view all previously run project integrity tests for that project.

When backing up projects, the result of the first project test is listed, along with all other integrity test results, in the Project Properties dialog box Integrity tab. The result of the second integrity test is recorded in the Project_Integrity.txt file, which is stored with the resulting project backup in the location you specified during backup.

To view the log files:

The logs are located in the Empower\Logs directory. When testing the integrity of multiple projects, a "BatchBackup", "BatchRestore", and "BatchIntegrity" timestamped log file is saved in the Logs directory. This log includes the result (succeeded or failed) of the integrity test on each project.

To resolve project integrity errors:

- If the project contains integrity errors, you can restore an earlier version of the same project with known good project integrity. When you view the project integrity report, it provides a history of all previously run reports. Restore the latest one where the **Results** were listed as **All Tests Completed OK**.
- If the Integrity test fails because of incomplete data channels (when taken into the Review window, show `Data Incomplete` or `Bad Checksum` in the chromatogram or contour plot), use the right-click **Verify Incomplete Data** option in Review to verify those data channels. When you rerun the integrity test, the verified channels no longer cause the integrity test to fail.