**Efficient Report Export for Large Data Sets**

1. **Start the Export**  
   The user clicks the **Export Report** button to begin the export process.
2. **Confirm Export Settings**  
   The system checks that all required options (such as date range, filters, and format) have been selected.
   * If any setting is missing or invalid, the system displays an error message prompting the user to correct it, and the process pauses until the user updates the settings.
3. **Estimate Data Size**  
   Once settings are validated, the system reviews the amount of data to be exported to decide how to process the report.
4. **Decide Processing Method**
   * **If the data set is small enough**, the system proceeds immediately.
   * **If the data set is very large**, the system switches to a background mode to keep the interface responsive.
5. **Immediate Report Generation (Small Data Sets)**
   * The system compiles the selected data into the chosen report format.
   * It creates the report file and applies any necessary compression.
   * A secure download link is generated instantly.
   * The user sees a message confirming that the report is ready and can click the link to download it.
6. **Asynchronous Report Generation (Large Data Sets)**

* The system acknowledges the request and informs the user that the report is being prepared.
* It queues the export job in the background to avoid slowing down the user interface.
* The user may continue working or close the application without interrupting the export.

1. **Background Processing Steps**
   * The system retrieves and compiles the large volume of data in manageable segments.
   * Each segment is written to the report file and compressed on the fly to save space.

* After all segments are processed, the system finalizes the report file.

1. **Generate Secure Download Link**  
   Once the file is ready, the system creates a time-limited link that ensures only authorized users can access the report.

**A diagram of a data flow

AI-generated content may be incorrect.**