

## **SEVEN-STEP APPROACH TO ASSESSING RELIABILITY OF COMPUTER PROCESSED DATA**

Determining the reliability of computer processed data through testing and documenting the results of our assessment is an important procedure in the audit process. Such testing can be used to:

- Determine the magnitude of a potential system and control vulnerability
- Evaluate the functioning of the control
- Analyze transactions to identify potential problem conditions
- Substantiate the correctness and validity of the output results

The following is a listing of seven key audit steps to be considered during this phase of the evaluation:

### **1. Conduct a Data File Survey**

- Familiarizes the auditor with the types and attributes of data in a specific data file.
- Provides the auditor with demographic statistics about the file that can be helpful in determining the sample size or the type of data to be examined.
- The data file survey is accomplished through an analysis of the file using a data retrieval/extraction program or generalized audit software.
- Information to be collected by the auditor about a specific file includes:
  - **Organizational Structure**: The sequencing and retrieval methods for information.
  - **Record Formats**: The type and content of data in the electronic records.
  - **Size**: The number of records and the amount of space allocated to the file.
  - **Distribution**: An analysis of how the records are distributed (e.g., in an accounts receivable file, the number of records in different dollar values: \$0 to \$100, \$101 to \$200, etc.).
  - **Statistical Analysis**: An overview of demographic statistical information that will aid in understanding the file attributes.
  - **Dollar Value Analysis**: Information describing dollar characteristics of the population of records in the file.
  - **Suspense Items**: Accounts or records in the file for which the proper distribution is unknown.
- Results of the survey are used for planning tests of the data and the information can dictate the test approach.
- Initial audit findings disclosed during the data file survey may include:
  - A large number of small values in the file.
  - A large number of negative items in the file.
  - A large number of suspense items in the file.
  - Records in the file for long periods of time without appropriate action.

## **2. Create a Data Test Plan**

- Test plan should be based on the results of the data file survey.
- The auditor is testing the data to substantiate the values reflected in the organization's documented output (e.g. financial statements), to determine or estimate the magnitude of detected control vulnerabilities, or to accomplish one or more of the measurable audit objectives.
- The data test plan should clearly state the condition or objective the auditor hopes to accomplish by the test and how that objective is to be accomplished.
- The plan should indicate the type of evidence that will be examined, who is responsible for conducting the test, and the start and stop dates of the test.
- In developing the data test plan, the auditor should:
  - Create a correctness proof for the data test: a hypothesis such that proving or disproving it accomplished the audit objective. For example, if the audit objective is to confirm accounts receivable to prove correctness within one percent, the auditor could develop a correctness proof statement as follows: "The actual value of accounts receivable as of September 30, 2004 is within one percent of \$1, 400.000."
  - Create a test that meets the following conditions:
    - It can be performed on the available audit evidence.
    - It can be performed using tools available to the auditor.
    - It can be performed within the skill level of the audit team.
    - It can be performed within the time available.
    - It will prove the integrity of the electronic file.
    - It will produce reliable results for use in developing findings and recommendations.

## **3. Develop Test Tools**

- Objective of this task is to specify the data to be used, the processing to be performed on it, and the types of output reports to be produced.
- Test tool specifications should be developed from the perspective of the desired audit output.
- The output specification should include items such as:
  - The proposed name of the report.
  - The period the report will cover.
  - All data elements to be included in the report.
  - Any editing to be performed on the data elements.
  - Totals and subtotals to be prepared.
- Document the available input records or data elements, by acquiring a record format/file description of the data or from the data dictionary.
- The input information to be gathered should include:
  - Data element definitions that will be used in processing.
  - Attributes of each data element; expected range of value and codes.
  - Any important file characteristics uncovered during the data file survey.
  - Volume of records.
  - Time period covered by each file and the number of files to be analyzed.

- Cross-referencing input fields to output fields indicates one of the following processing conditions:
  - There is no input field for a given output field; hence, the required information cannot be produced.
  - There is a one-to-one relationship between input and output. In this case, data from an input record need only be moved to an output file so that processing is simply a matter of moving data.
  - The desired information must be calculated from the input. Totaling, editing, calculations, or comparisons based on two or more input fields or records may be required.

#### **4. Verify File Integrity**

- Verifying the integrity of a data file means proving that the totality of data in the file is correct. In an accounts receivable file, for example, this involves reconciling the totals of the records in the file with the amount of accounts receivable in the organization's financial statements.
- Common methodologies employed in verifying file integrity include:
  - **Key Field Proof**: With this method, a field, usually a control field, is totaled and compared with an independent source. (Refer to example above)
  - **Completeness Proof**: This method counts some item in the file and verifies it against a count of that field. Other completeness proof methods include Proof of Pointers, Check Digits, and Hash Totals.
  - **Simple Accounting Proof**: A reconciliation of processing over a period of time. It involves starting with a verified previous balance and substantiating additions and deletions to the file. The balance produced by the simple accounting proof is then compared with the balance in the data file to verify its accuracy.

#### **5. Evaluate the Correctness of the Test Process**

- Review the audit software program to confirm that it functions properly and will produce the desired results.
- Each computer program should be tested in terms of both structure and function.
- Structural testing determines whether the program is structurally correct and can work in an operating environment.
- Functional testing is designed to ensure that the system does what it is supposed to do.

#### **6. Conduct Data Test**

- The data test program is executed after the validity of the test tool has been verified.
- This task involves gathering all the needed data before executing the audit program and then verifying that the program was executed correctly.
- Procedures for executing generalized audit software vary from organization to organization, and the method of execution depends on the operational strategy and the type of equipment.

## **7. Review Data Test Results**

- The auditor must review the results produced by the generalized audit software.
- The auditor should examine this data with the following questions in mind:
  - Is the information what we wanted?
  - Is the information of the expected value, quantity, and format?
  - Does the data appear to be complete?
- The auditor should determine whether the output data appears to be logical on the basis of reasonable values for the printed fields.
- Results should also reconcile with expectations: if the auditor expected to confirm about 80 percent of the total value, the totals produced by the run should be approximately 80 percent of the value.
- If the actual results vary significantly from what is expected, the auditor should determine whether there was a misunderstanding about the data file or a problem producing the report.
- It is important that the results be evaluated for reasonableness to avoid missing potential audit findings or making recommendations that are incorrect.