Chapter VII

Framing Database Audit of ISO/IEC 12207 Software Life Cycle Processes

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Data has become one of the most valuable assets in corporations as a result of information technology evolution. To run businesses satisfactorily companies must have complete, coherent and updated data sets. In order to increase efficiency and minimize risks it is mandatory to pay very special attention to audit and control activities.

Database audit has developed its own approaches and techniques, sometimes in an independent fashion from other activities related to software. However, framework standard ISO/IEC 12207 Software Life Cycle processes, ISO/IEC 12207 (1995) considers audit as a process, defined and characterized in the standard.

This chapter describes an approach to database audit that is framed of ISO/IEC 12207. The reason for paying such attention to this standard is its widespread use and popularity, as well as the fact that it has been taken as a reference for the software-related issues in the new collection known as ISO 9000:2000 (not yet fully published).

Sections are as follows: Introduction; Audit in The Context of ISO/IEC 12207 that is a presentation of ISO/IEC 12207 and the role of audit in it; then a Short Overview to Audit Methodologies for the Database Field; an explanation of Control Objectives for
Database Primary Life Cycle Processes; Control Objectives for Database Organizational Life Cycle Processes: Infrastructure; A Description of Control Techniques; and ends with a description of Some Risks Associated to Databases and a number of Conclusions.

**AUDIT IN THE CONTEXT OF ISO/IEC 12207**

According to ISO/IEC 12207 (ISO/IEC 12207, 1995), Audit is a process for determining compliance with the requirements, plans, and contract as appropriate. This process may be employed by any two parties, where one party (the auditing party) audits the software products or activities of another party (audited party).

ISO/IEC 12207 classifies life cycle processes as primary, supporting and organizational:

- **Primary processes** are acquisition, supply, development, operation, and maintenance. In the case of databases, as we shall discuss below, it is required to audit activities corresponding to all these processes.
- **Supporting processes** cover documentation, configuration management, quality assurance, verification, validation, joint review, audit and problem resolution.
- **Finally, organizational processes** includes management, infrastructure, improvement and training.

The advantage of using ISO/IEC 12207 as a framework is twofold: first, an audit is a process for it and, second, we can set an audit plan according to the processes defined there. All the processes and activities will be under a uniform approach.

In the rest of the chapter ISO/IEC 12207 will be used as the framework from which we get the processes that we consider necessary to audit, keeping the standard structure. As we explain, this works fine for risk-oriented approaches, while not so good for checklist ones, because of the underlying philosophy they have.
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