Chapter VII

Extending Security in Agile Software Development Methods

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ABSTRACT

Software developers can use agile software development methods to build secure information systems. Current agile methods have few (if any) explicit security features. While several discrete security methods (such as checklists and management standards) can supplement agile methods, few of these integrate seamlessly into other software development methods. Because of the severe constraints imposed by agile methods, these discrete security techniques integrate very poorly into agile approaches. This chapter demonstrates how the security features can be integrated into an agile method called feature driven development.
INTRODUCTION

The software industry has formalized agile product development in various forms of agile software development methods (Abrahamsson, Warsta, Siponen, & Ronkainen, 2003; Thomke & Reinertsen, 1998). For competitive reasons, developers often use these methods for Web and network applications where security risks are prominent. Despite the prominent risks, the existing agile methods have few features specifically addressing security risks. As a result, agile software products may lack security protection unless such protection is added afterwards. The subsequent adding of security features to software requires courage from software developers and administrators. One reason why the agile methods ignore security issues may stem from a misconception that it is, indeed, security that hinders the development (Zurko & Simon, 1996). Indeed, security methods may hinder the information systems and software development if the security methods cannot be integrated into information systems and software development (Baskerville, 1992, 1993; Siponen & Baskerville, 2001). In order for security methods can be seamlessly integrated into agile information systems and software development methods, the security techniques need to meet several requirements, including that the security techniques must be adaptable to agile information systems and software development methods, which operate in unstable conditions (Baskerville, 1992, 2004).

This chapter outlines the requirements for security techniques to integrate seamlessly into agile methods. We demonstrate these requirements through an example of an approach for adding security into agile information systems and software development methods. In practice, this solution has been successfully tested in early design phases (Siponen & Baskerville, 2001). We show how this approach also offers a promising solution for adding security in agile information systems and software development, expanding earlier work that adapts it into the phases of agile methods (Siponen, Baskerville, & Kuivalainen, 2005).

The chapter is organized as follows. Next section outlines principles and practices for agile software development. The next two sections present the general security requirements for agile methods and propose key security elements in agile software development. The subsequent section shows how these elements can be integrated into feature driven development, which is an agile information systems and software development method. The findings of the chapter are summarized in the last section.

AGILITY IN INFORMATION SYSTEMS AND SOFTWARE DEVELOPMENT

Agile information systems and software methods are characterized by nimbleness to rapid changes, multiple incremental iterations and a fast development pace (Abrahamsson et al., 2003). Agile development is defined as a set of principles and
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