
Chapter 29

Links in the requirements chain

- Addressing the subject of requirements tracing (or traceability).
- Student should enhance that the requirements trace information documents the dependencies and logical links between individual requirements and other system elements.
- Student should understand that trace information facilitates impact analysis to identify all the work products regarding implementation of requirement change

- Tracing requirements
- Motivations for tracing requirements
- The requirements traceability matrix
- A requirements tracing procedure

Tracing requirements

- Why tracing requirements?
- Is requirements tracing feasible? Is it necessary?
- Types of requirements tracing

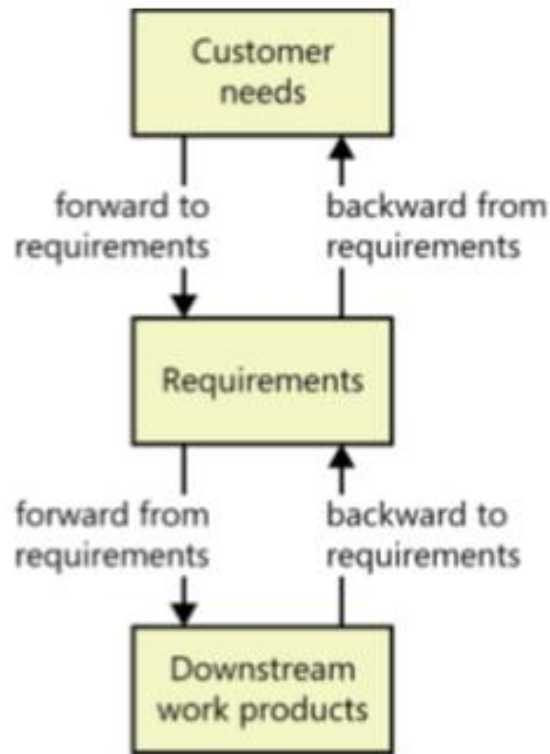


FIGURE 29-1 Four types of requirements tracing.

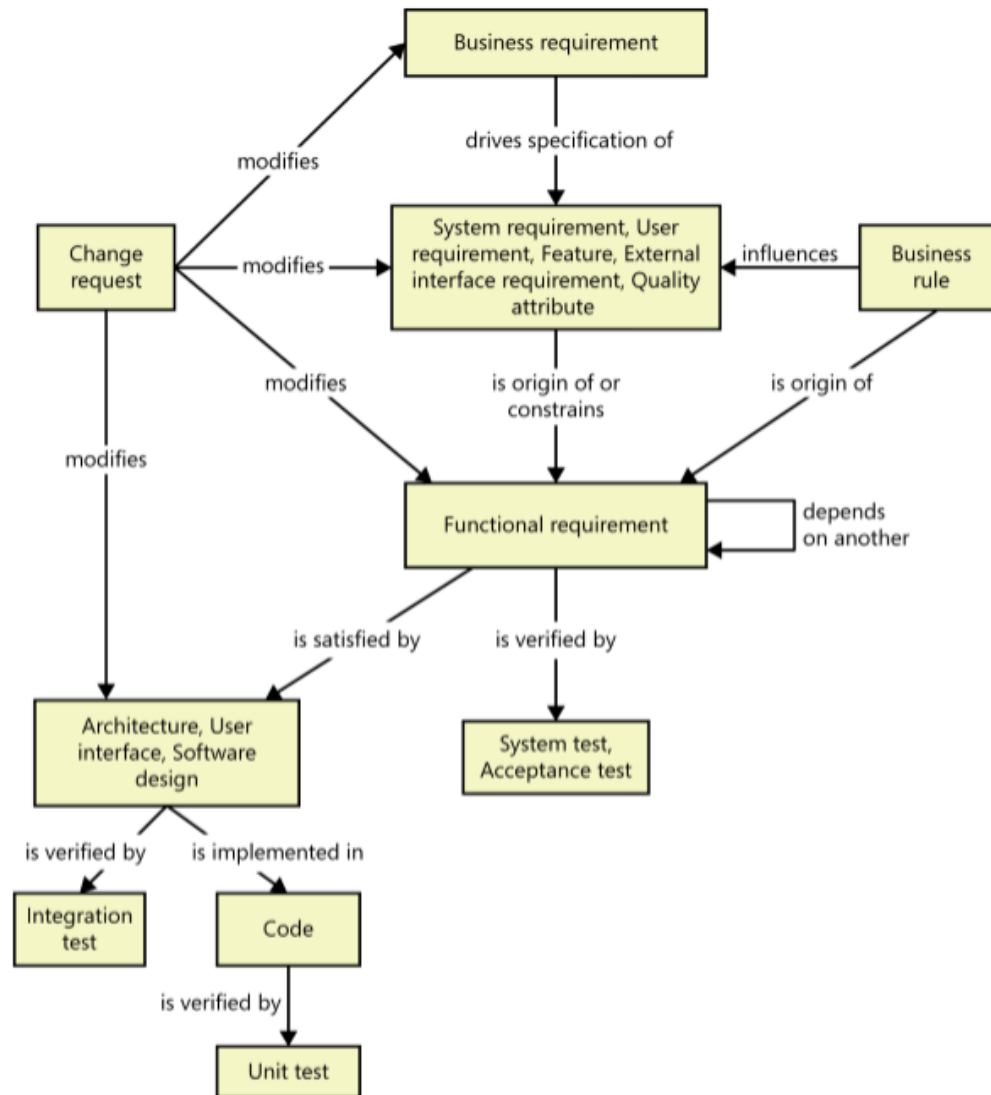


FIGURE 29-2 Some possible requirements trace links.

Motivations for tracing requirements

- Finding missing requirements
- Finding unnecessary requirements
- Certification and compliance
- Change impact analysis
- Maintenance
- Project tracking
- Reengineering
- Reuse
- Testing

The requirements traceability matrix

- Requirements traceability matrix=requirements trace matrix = a traceability table: Represent the links between requirements and other system elements

TABLE 29-1 One kind of requirements traceability matrix

User requirement	Functional requirement	Design element	Code element	Test
UC-28	catalog.query.sort	Class catalog	CatalogSort()	search.7 search.8
UC-29	catalog.query.import	Class catalog	CatalogImport() CatalogValidate()	search.12 search.13 search.14

TABLE 29-2 Requirements traceability matrix showing links between use cases and functional requirements

Functional requirement	Use case			
	UC-1	UC-2	UC-3	UC-4
FR-1	↙			
FR-2	↙			
FR-3			↙	
FR-4			↙	
FR-5		↙		↙
FR-6			↙	

Traceability chain involving nonfunctional requirements

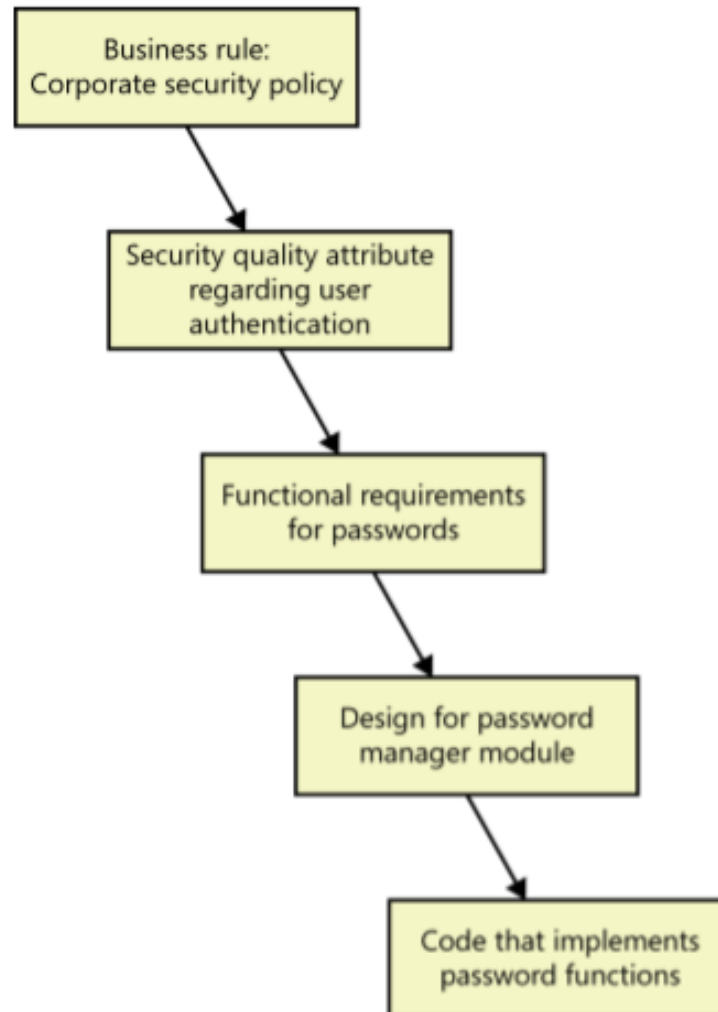


FIGURE 29-3 Sample traceability chain for requirements dealing with application security.

TABLE 29-3 Likely sources of trace link information

Link source object type	Link target object type	Information source
System requirement	Functional requirement	System engineer
User requirement	Functional requirement	Business analyst
Business requirement	User requirement	Business analyst
Functional requirement	Functional requirement	Business analyst
Functional requirement	Test	Tester
Functional requirement	Architecture element	Architect or developer
Functional requirement	Other design elements	Designer or developer
Design element	Code	Developer
Business rule	Functional requirement	Business analyst



A requirements tracing procedure

- See list of steps in page 499 and try to process with your project's requirements.