

Quality Specs

David Gelperin
LiveSpecs Software

Version 1.2 2/28/04

Acknowledgements: This work borrows heavily from examples in “Quantifying Quality Requirements Using Planguage” by Erik Simmons which is based on the Planguage work of Tom Gilb.

Template:

ID	Unique, persistent identifier
ATTRIBUTE	Name and details of a quality or other non-functional attribute (e.g., data requirement) to be measured
MEASURE	Name, scale, and details of a measure that characterizes the attribute
METHOD	Formula or procedure for taking the measurements
Frequency	How often measurements will be taken
Measurers	People or department taking the measurements
Reporting	Where and when the measurements are to be reported
MUST	Minimum required measurement results
GOAL	Satisfactory measurement results (might be the same as MUST)
Stretch	Superior measurement results
Trend	Historical range or extrapolation of measurement results
Past	Previous measurement results
Record	Best known measurement results
Note	Additional description

Rule: the items above in all caps must appear, the other elements are optional

Useful symbols:

<fuzzy concept> Fuzzy concepts appear in angle brackets
{item1, item2, ...} Set of objects appears in braces
[when, which, ...] Keyword modifiers appear in square brackets
← Source of a statement is indicated by arrow: statement ← source

Example 1:

Natural language version –

The system must be used successfully to place an order in under 10 minutes without assistance by at least 80% of the test subjects with no previous system experience.

Quality spec version –

ID	QS-1.1
ATTRIBUTE	Learnability – ease of learning to use the system effectively
MEASURE	Time (in minutes) required by novice subjects (with no prior exposure to our website and less than 6 months experience with web applications) to successfully complete a 1-item order (assisted only by the online help system)
METHOD	Time at least 100 novice subjects during user interface testing
MUST	Less than 10 minutes for at least 80% of the novice subjects
GOAL	Less than 7 minutes for at least 80% of the novice subjects
Stretch	Less than 5 minutes for at least 80% of the novice subjects
Past [current system]	11 minutes for 80% of all users ← recent site statistics

Example 2:

Quality spec version –

ID	QS-1.2
ATTRIBUTE	Access security – difficulty in gaining unauthorized access
MEASURE	Time (in hours) required by <skilled> attackers (with no special knowledge of the system) to gain unauthorized access using <commonly available> tools and techniques
METHOD	Time a team of two <skilled> security engineers
MUST	At least 8 hours
GOAL	At least 16 hours

Example 3:

Quality spec version –

ID	QS-9.1
ATTRIBUTE	Requirements efficiency
MEASURE	Percentage of defect-free requirements effort (in staff-hours) compared to total requirements effort
METHOD	Calculate (total reqs. effort – reqs. rework effort)/total reqs. effort using defect logs and project tracking database
Frequency	Monthly
Measurers	Software Process team
Reporting	Senior Staff meeting
MUST	At least 65% ← estimate based on system familiarity and requirements capability
GOAL	At least 75%
Stretch	At least 85%

Example 4:

Natural language version –

The third key requirement is power consumption. Generally, the power consumption requirements are driven by noise requirements or CE compatibility.

The customers expressed the need for lower active power consumption so that passive cooling can be used. However, this is one possible implementation and other implementations need to be addressed by engineering.

Standby power consumption should meet the levels obtained by CE devices; 5-10W, and be achievable with the fan off. Cost is a factor. 10W standby is acceptable if the implementation cost is less than that of 5W standby.

These requirements were articulated by Company1, Company2, Company3, Company4, and Company5

Quality spec version –

ID	QS-5.17
ATTRIBUTE	Standby power consumption ← {Company1, Company2, Company3, Company4, Company5}
MEASURE	Power (in watts) consumed in 10 seconds at 23°C ± 2°C with the fan off and the HDD not spinning
METHOD	Measure at least 1 unit from each of the first 3 batches using a <device>
Measurers	QA staff
Reporting	Batch evaluation form
MUST	10W
GOAL	5W if design and manufacturing costs do not exceed 10W cost by more than 25%
Note	Passive cooling within the system is desired
Note	Related to noise (QS-3.6) and CE compatibility (QS-4.7) requirements