

SOLUTION BRIEF

CA AGILE REQUIREMENTS DESIGNER FOR CA AGILE CENTRAL

CA Agile Requirements Designer for CA Agile Central

Automatically convert user stories into the smallest set of test cases needed to fully test a system with CA Agile Requirements Designer (formerly Grid Tools Agile Designer) for CA Agile Central. These can be allocated to available teams in CA Agile Central, linked to the right data and expected results, providing test teams with all the development materials they need to deliver valuable software to market earlier and at less cost.

Executive Summary

Challenge

As business initiatives constantly evolve, test teams are finding themselves unable to keep up with poorly written, fragmented user stories. They must manually check, create and update test cases by hand each time changes are made. This leads to typically poor test coverage, so that an unacceptable number of defects go undetected, while invalid and redundant tests quickly build up as the same functionality is repetitively tested. As a consequence, testing can consume up to 50 percent of the average software development lifecycle, while change requests can take up to 60 percent, making the successful adoption of agile principles impossible.

Opportunity

CA Agile Requirements Designer provides the complete user story definition, test case design and test automation tool, fully integrated into the CA Agile Central development platform.

Existing user stories and test cases can be imported from CA Agile Central and converted into an unambiguous, active flowchart. Stories which reflect 100 percent of the specified functionality can then be derived and pushed back out to CA Agile Central. At the same time, the smallest set of test cases needed for maximum coverage can be created automatically and are linked to the right data and expected results. These are attached to the relevant user stories in CA Agile Central, providing testers with everything they need to test the most functionality possible within a sprint.

When a change is made to the requirements, tests and data are updated automatically, allowing testers to deliver quality software which reflects constantly changing user needs. CA Agile Requirements Designer will further provide accurate time, cost and complexity metrics for requirements and change requests, allowing accurate story points to be assigned and working to guarantee on-time delivery in the face of constant change.

Benefits

- Foster close collaboration between the user, business and IT teams and avoid time-consuming rework.
- Detect defects earlier, where they require far less time and resources to fix.
- Avoid bottlenecks created by manual test case design, test data allocation and test maintenance.
- Deliver quality software which reflects constantly changing requirements, earlier and at less cost.
- Shorten test cycles and test the most functionality possible within a sprint.
- Enhance product and portfolio management with accurate time, scope and cost forecasts.
- Assign realistic story points using sophisticated complexity analysis and dependency mapping.
- Provision data 50 percent faster¹ by building a central library of re-usable data assets, linked to test cases.
- Improve communication between teams distributed worldwide using auto-updating sprint-boards.

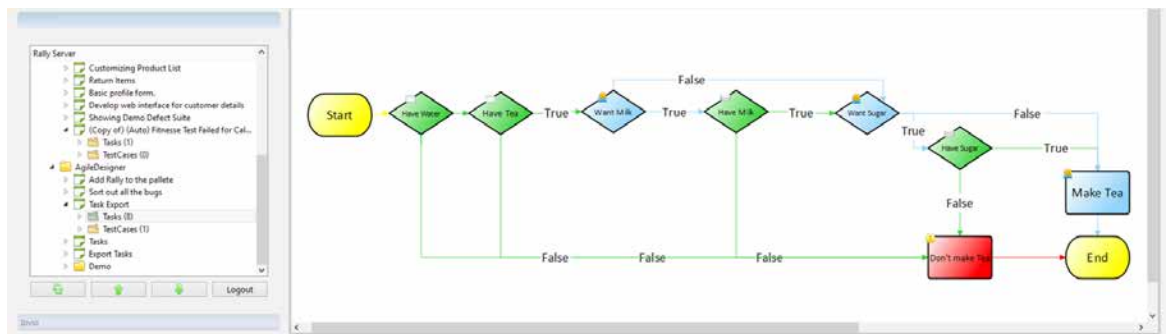
Section 1:

Design a Better System

New or existing user stories and change requests can easily be dragged and dropped from CA Agile Central and incorporated into a complete functional specification, while individual user stories or groups of stories can also be unambiguously modelled. This provides a collaborative point of reference for business and technical teams, eliminating the delays and frustrating rework which arise from ambiguity in written user stories.

Figure A.

User stories are dragged and dropped from CA Agile Central to an unambiguous, active flowchart.



- Model fragmented user stories as unambiguous, active flowcharts and avoid the 56 percent of defects² that arise from ambiguous requirements.
- Improve collaboration between the user, business and IT, deriving user stories and test cases directly from user stories, Business Process Models and requirements.

Section 2:

Provide Developers With the Perfect Set of User Stories

Flow validation algorithms can be applied to the modeled system or user story, which can also be visually verified with the end user before any substantial development work begins. Any new or missing user stories can then be derived automatically from the complete flowchart, shortening the feedback loop and discovering defects before they can result in time-consuming, costly rework.

The user stories are pushed out and allocated to developers in CA Agile Central, along with the data, acceptance criteria and expected results that are needed to implement them. This avoids the delays created by incomplete or ambiguous written user stories, providing developers with everything they need to deliver quality software which reflects changing user needs.

Figure B.

The shortened feedback loop: user stories can be visually verified with the end-user or business analyst, before any substantial development work begins.

Step Name	Status	Expected Results	Test Data	Resolved Test Data	Exec Time	Description
1 Start	Passed				Fri Nov 6 14:17:17 2015	Start
2 Have Water = True	Passed				Fri Nov 6 14:17:18 2015	Have Water
3 Have Tea = True	Passed				Fri Nov 6 14:17:19 2015	Have Tea
4 Want Milk = False	Passed				Fri Nov 6 14:17:19 2015	Want Milk
5 Want Sugar = True	Failed				Fri Nov 6 14:17:20 2015	Want Sugar
6 Have Sugar = False	Passed				Fri Nov 6 14:17:21 2015	Have Sugar
7 Don't make Tea	Passed	Don't make tea			Fri Nov 6 14:17:22 2015	Don't make Tea
8 End	Failed				Fri Nov 6 14:17:26 2015	End

Overall Path State: Failed

- Provide development teams with unambiguous user stories, complete with the data and expected results needed to implement them.
- Verify user stories with the end user before substantial testing and development begins and avoid costly late rework created by miscommunicated user needs.

Section 3:

Automatically Generate the Perfect Set of Test Cases

Cut defect creation by as much as **95 percent**.³

Raise your test coverage by up to **80 percent**.⁴

Cut over testing by up to a **factor of four**.⁵

At the same time as user stories are created, the smallest set of test cases needed to test 100 percent of the specified functionality can be generated from the flowchart. These are linked to the right data and expected results and are attached to the relevant user stories in CA Agile Central, eliminating the bottlenecks created by manual test case design. More defects will be detected earlier and test cycles will be shortened so that testers can deliver valuable software earlier and at less cost.

- Automatically create the smallest set of test cases with 100 percent coverage and attach them to the relevant user stories in CA Agile Central, to test the most functionality possible within a sprint.
- Optimize existing test cases, to achieve maximum coverage and shorten the average test cycle by 30 percent.

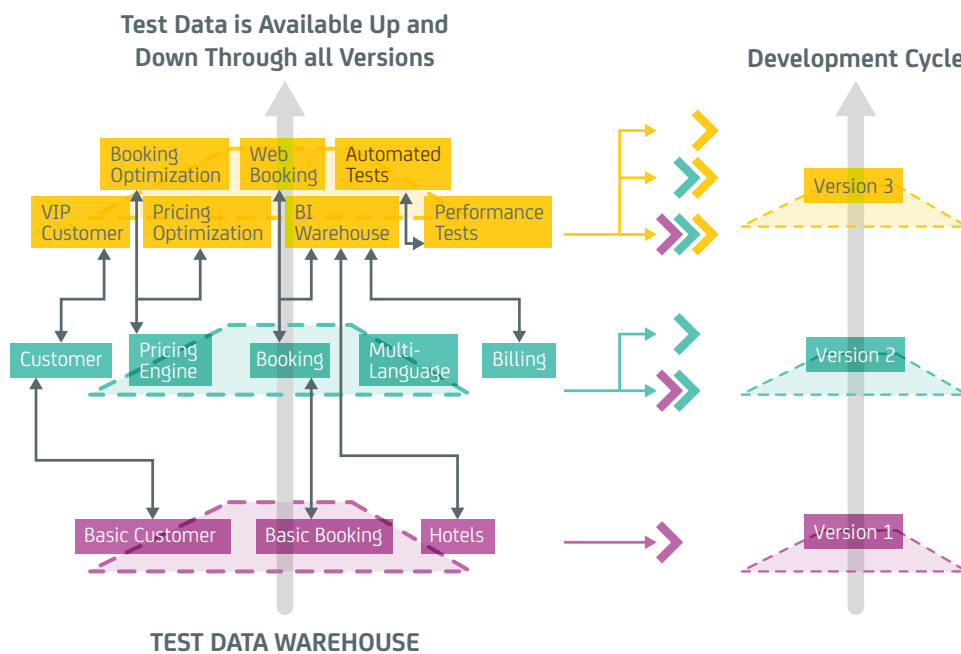
Section 4:

Test Data Management for CA Agile Central

CA Agile Requirements Designer integrates with CA Test Data Manager, introducing complete, end-to-end test data management to CA Agile Central. All the data needed to execute every possible test can be mined in minutes from multiple back-end systems, using powerful synthetic data generation to create any missing data needed for rigorous testing. The data is “matched” to the specific test cases it can run and is stored as re-usable assets in a test data warehouse. From there, it can be pushed out and allocated to available test teams in CA Agile Central, or can be requested and received in minutes from a web-portal. Testers and developers are provided with everything they need to deliver rigorously tested software, on time and within budget.

Figure C.

Data stored in the test data warehouse is updated to reflect changes to the requirements and is available across versions in parallel.



As it is delivered, data is cloned, allowing highly distributed teams to use it in parallel. Powerful version control means that relevant data sets automatically reflect changes made to system requirements so that multiple releases and versions can be developed in parallel using the most up-to-date data. Rare and interesting data can also be reserved to stop it being disrupted by another team while data linked to test cases is preserved during a data refresh.

- Automatically mine the data needed to execute every test from multiple back-end systems, or create it from scratch using powerful synthetic generation.
- Link test cases to data and expected results and provide testers with everything they need to rigorously test a system.
- Re-use data across projects, versions and releases to avoid unnecessary rework and ensure consistency.
- Fulfil data requests 50 percent faster by building a central library of re-usable data assets.

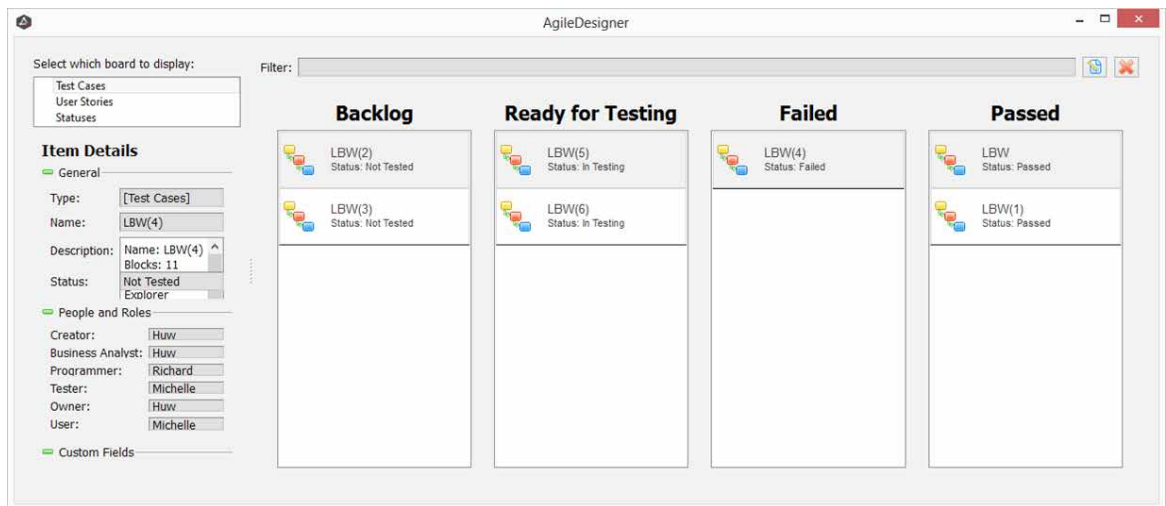
Section 5:

Fully Synchronized Sprint Boards

Fully configurable sprint boards mean testers and developers know exactly what needs to be executed and when. The status of test cases and user stories is automatically updated across boards for improved collaboration between teams, while progress can be viewed in real-time for enhanced product management. Synchronizing these boards with CA Agile Central introduces full visibility, connecting business requirements directly to test cases, backlogs and roadmaps.

Figure D.

Test cases and data can be pushed out and allocated via synchronizing sprint boards.



- Foster communication between teams distributed worldwide using auto-updating sprint-boards.
- Shorten iterations and sprints by allowing test and development teams to work on individual components of a system in parallel.

Section 6:

Keep up with Changing Requirements

With CA Agile Requirements Designer, testing can keep up with constantly changing requirements. When a change is made to the flowchart, any broken or invalid tests are automatically identified and updated across the entire system and any new tests needed for rigorous testing created. Testers only re-test what they need to, shortening testing time and avoiding the delays created by manual test maintenance.

- Automatically update test cases and user stories when a change is made to eliminate testing bottlenecks and keep up with business initiatives.
- Identify the exact impact of a change system wide and know which components need to be re-tested.

Section 7:

Accurate Project and Portfolio Management

CA Agile Requirements Designer allows you to effectively manage portfolios and projects, working to guarantee on-time delivery in the face of constant change. Using accurate cost and complexity metrics, teams can assign accurate story points, while dependency mapping allows for informed trade-offs between critical tests and functionality.

- Enhance product and portfolio management using accurate time, scope and cost forecasts.
- Assess the relative size of stories, using accurate complexity metrics to better assign story points.
- Create realistic roadmaps for enhanced release planning.

Section 8:

A Fully Integrated, End-to-End Solution

With two-way integrations with business process modelling (BPM), test automation and requirements gathering tools, CA Agile Requirements Designer for CA Agile Central provides a fully integrated solution. You can move directly from business models to tests, taking requirements from idea to deployment at pace without compromising quality.

CA Agile Requirements Designer also allows you to move from design to deployment, ensuring that testers and developers have the on demand access to environments they need. Virtual end points can be defined in the model so that testers and developers can specify what in the system under test needs to be virtualized. Using CA Service Virtualization, they can then be provided with the environments to execute every possible test, based upon the system requirements themselves.

- Maximize the value of existing tools and effort, by importing existing test cases and requirements, optimizing them and allocating them in CA Agile Central.
- Provide a collaborative point of reference for stakeholders across the SDLC and leverage the value of all existing assets from a central dashboard.
- Define virtual end-points in requirements and test cases and provide on demand, parallel access to test and development environments.



Connect with CA Technologies at ca.com



CA Technologies (NASDAQ: CA) creates software that fuels transformation for companies and enables them to seize the opportunities of the application economy. Software is at the heart of every business, in every industry. From planning to development to management and security, CA is working with companies worldwide to change the way we live, transact and communicate – across mobile, private and public cloud, distributed and mainframe environments. Learn more at ca.com.

- 1 Metric collected from CA Technologies implementation experience.
- 2 Bender RBT, "Requirements Based Testing Process Overview," 2009.
- 3 Metric collected from CA Technologies internal use.
- 4 Metric collected from CA Technologies implementation experience.
- 5 Metric collected from CA Technologies implementation experience.