



www.turnkeysolutions.com

143 Union Blvd Suite 1020 Lakewood,
CO 80228
Tel: +1 (303) 325 2648
Contact: info@turnkeysolutions.com

TurnKey Solutions Test Design Automation

The company

Founded in 1989, TurnKey Solutions is a privately held company based in Denver, Colorado with over 25 years of experience bringing new test automation tools, technologies and processes to market, culminating with the launch of cFactory, the company's test creation platform, in 2008. More

recently, TurnKey has released Rainier, its test plan management platform.

What is it?

TurnKey's test design automation offering comes in three parts. The first is the cFactory

test automation suite, an application-aware, script-less, automated test creation solution. The second is dataDriver, a test data management tool that works in concert with cFactory. The outputs of these products are brought together to create executable end to end tests within the Rainier test plan management platform, the third and final part of TurnKey's offering. Alternatively, Micro Focus ALM can be used in place of Rainier.

This solution is designed to work across the entire enterprise application spectrum. Several different flavours of content accelerator packages – comprehensive libraries of pre-built functionality, connectors and test cases – are available, each for a specific kind of application, with the company specialising in ERP and CRM application environments (both SAP and Oracle are partners). Mobile applications are also supported via cFactory Mobile.

What does it do?

cFactory enables you to create 'components', as seen in **Figure 1**, abstract pieces of UI interaction that can be reused by supplying them with varying

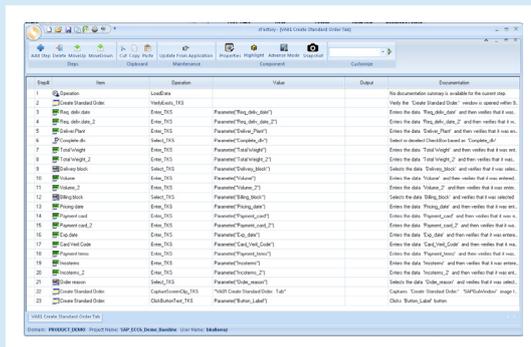
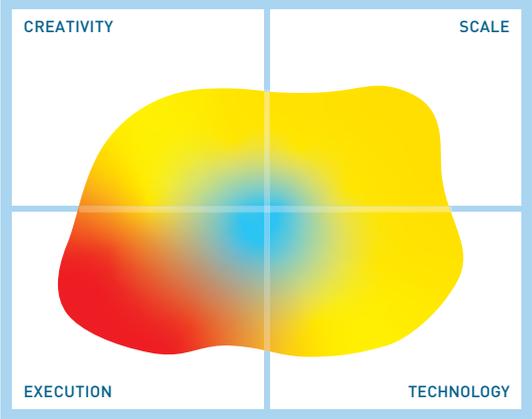


Figure 1 – A component in TurnKey cFactory



The image in this Mutable Quadrant is derived from 13 high level metrics, the more the image covers a section the better. Execution metrics relate to the company, Technology to the product, Creativity to both technical and business innovation and Scale covers the potential business and market impact.

sets of test data. In other words, they are data driven. Moreover, creating your components does not require any programming. To create a component, cFactory will inspect a page in your application, pick out the interactable elements, and ask you to specify which operation (if any) should apply to each element (for example, data entry, or validation), and from that information generate a component that performs those operations on that page. This can, of course, be repeated for many operations across all of the pages in your application. You can also constrain cFactory so that it only looks for elements of a particular type or in a specified area on the page. Lastly, cFactory will monitor your application for changes, perform change analysis, and automatically update your components when a change is detected.

dataDriver, on the other hand, allows you to pull (and optionally encrypt or mask) data directly from your backend datastores for use as test data. Oracle databases are supported natively, and a variety of connectors to other popular databases and data formats (for example, SQL Server and REST) are provided out of the box. Data held within dataDriver can be analysed, sorted, and ultimately used to generate sets of test data. It also provides automated change management for

Automation	★★★★★
Collaboration	★★★★
Ease of use	★★★★☆
Functionality	★★★★

Implementation	★★★★★
Integration (Third Party)	★★★★☆
Integration (Vendor Platform)	★★★★★
Maintenance	★★★★★

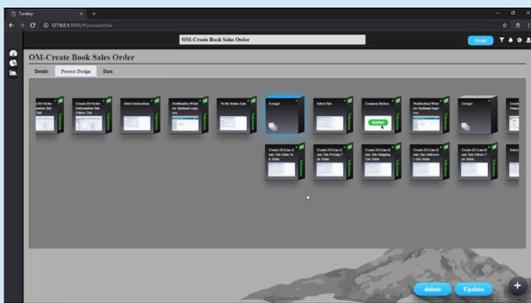


Figure 2 –
A process flow in TurnKey Rainier

your test data, in the same way that cFactory does for your components.

Once you have created your components, you can export them

to the Rainier test plan management platform. This allows you to search through and manage your components and other testing assets in a catalogue, as well as assemble components into process flows (in other words, test cases, as seen in **Figure 2**) and process flows into system flows (end to end tests). This approach allows both components and process flows to be easily reused. Test data is loaded in via dataDriver, and flows can be executed manually, on a schedule, or as part of an autonomous job (see **Figure 3**) that will run whenever specified conditions are met. Executing your flows will run them for all possible combinations of any associated test data.

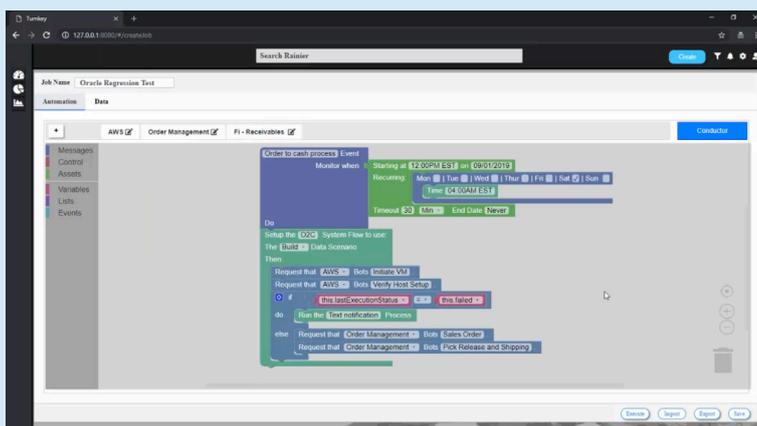


Figure 3 –
An autonomous job in TurnKey Rainier

If you would prefer not to use Rainier, you can instead export your test data and components to Micro Focus ALM and assemble and execute them there. In fact, if you would prefer to use both, you can even embed Rainier inside ALM (or, for that matter, Atlassian JIRA or Broadcom Agile Central). TurnKey will also integrate bi-directionally with Broadcom ARD and Broadcom TDM, either by leveraging them to generate a requirements model and test data for your

existing TurnKey tests, or by using TurnKey to attach components to test cases generated by ARD and exported to Rainier or ALM.

Why should you care?

TurnKey Solutions' testing architecture has a number of features that set it apart from other automated testing tools. The abstraction of UI interaction into components allows you to create automated tests without writing any code. Moreover, the abstract nature of components makes them highly suited for reuse, both in terms of building them into a variety of different tests, and driving them via different sets of test data. The latter point is particularly worth emphasising: because components (and therefore system and process flows) are data-driven, you can test multiple paths through your application with each flow by deploying it with multiple combinations of test data. This should greatly reduce the number of flows you need for comprehensive coverage compared to treating each combination of test data as a unique scenario. Moreover, both components and test data are equipped with automated change management, making maintenance of your tests significantly easier. Given the cost of maintaining a large suite of tests, this should not be overlooked.

Finally, the integration between cFactory and Broadcom ARD is significant, allowing you to retain the principle advantages of Broadcom ARD and Broadcom TDM (visual modelling, automatic test generation and advanced test data management) while enabling scriptless test automation via cFactory components. In many ways, this is the best of both worlds.

The Bottom Line

TurnKey offers a highly competent end to end test design automation solution that is data driven, scriptless, and that includes test data management capabilities. The recent release of the Rainier platform makes it a genuinely standalone solution that nevertheless is highly integrable with products such as Micro Focus ALM, Broadcom ARD, and Broadcom TDM.

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