GenRocket

Automated Test Data Generation

Taking test data beyond test data management

Achieving Continuous Testing with Automated Test Data Generation

More than 10 years ago, GenRocket developers set out to design a better way to generate test data. Much more flexible, faster, easier to change and update, and easily shared between testers and developers. This solution allows for test data to be generated with parent, child, and sibling relationship for data models of any size or complexity.

The Evolution of Test Data

To gain a full understanding of automated test data generation (ATDG) you need to have an understanding of the evolution of test data creation and management.

Manual Test Data Generation

Manual test data generation is the default for most engineers and testers. Engineers or developers create test data manually either by coding it or using a Microsoft Excel file.

Test Data Management

TDM solutions are used to copy test data from production and then manage, edit, mask and subset that data and place it in a data warehouse for testers and developers.
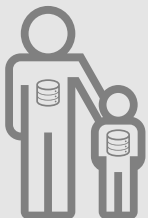
Automated Test Data Generation

Automated TDG solutions remove the complications of creating test data by hand and remove the overhead of having to query production data and mask it. TDG solutions allow engineers and testers to generate the test data they need when they need it.

Manual Test Data Tools:
• Text Editor
• Microsoft Excel

Test Data Management Tools:
• IBM Optim
• Informatica ILM
• CA Test Data Manager
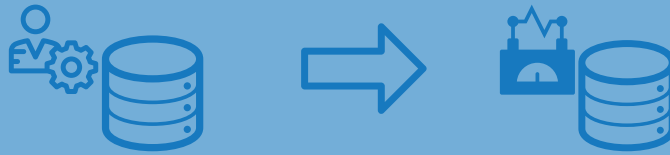
Automated TDG Tools:
• GenRocket

DID YOU KNOW?

GenRocket Shines with Parent, Child, and Sibling Relationships

Before GenRocket, test data generation was too hard to do by hand because of complex data models. As soon as the data model has 3 or more tables it becomes too complicated to manage by hand. GenRocket allows testers and engineers to generate their data without worrying about the complexity. **GenRocket can manage a relational database of 100 to over 10,000 tables with complex relationships.**

How Automated Test Data Generation moves beyond TDM's Limitations

Until now, TDM solutions have been the only available approach to providing test data sets for complex database environments. Unfortunately due to the complexity and cost of TDM solutions, all requests for test data had to flow through a central TDM resource. This leads to delays for testers and engineers to get access to test data for weeks and sometimes months. Automated test data generation (ATDG) is a paradigm shift from TDM -- rather than taking production data, pruning, creating, and storing it, ATDG greatly speeds up the process by generating model based test data on-demand in real-time.

Below are the three key ways that GenRocket's Automated Test Data Generation solution pushes past the limitations of TDM.

#1 HIGHER QUALITY TEST DATA

GenRocket provides access to unique, patterned, conditioned, and random test data.

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Testers need test data to test -- by just using production data, this prevents testers from having access to unique, patterned, conditioned, or random test data which means your application may not be fully tested. By using GenRocket's ATDG you can specify what your test data set should look like.

TDM solutions do not have easy access to patterned or conditioned test data.

With production test data you only have easy access to the type of test data in your production database. Production data allows for basic test cases to be tested but it lacks the necessary variety of test data for some types of test cases.

Unlike TDM solutions, GenRocket can create test data for new data models and applications.

GenRocket can create test data for new data models and applications.

A test data generation solution that can generate test data with complex parent-child relationships is the only solution for unreleased applications. If the test data doesn't exist the only way to get access to test data is by generating it.

TDM solutions are unable to provide test data for new applications or new data models.

For unreleased applications it is impossible to leverage production test data because it doesn't exist. Today's distributed applications have significant complexity which require on-demand complex test data for testing.

GenRocket decentralizes test data provisioning.

👍 **GenRocket is a decentralized solution which empowers your team to work more efficiently.**

With GenRocket, everyone on the team uses the system and can generate the data they need when they need it which enables Continuous Integration, Continuous Delivery, and Continuous Testing.

👎 **TDM solutions use a centralized model which introduces bottlenecks for test data provisioning.**

With TDM, testers and engineers often have to wait days or weeks for test data sets to be pruned and delivered to them from a test data manager. This means testers and engineers are not able to do the work they need to do because of this bottleneck which severely restricts today's testing models.

GenRocket makes it easy to modify test data.

👍 **GenRocket enables testers to easily modify test data when they need to.**

Testers can quickly iterate on the type and amount of test data they want to generate. They can easily generate exactly what they need themselves and can now quickly and thoroughly test core scenarios and also quickly test more edge cases.

👎 **TDM solutions do not provide a simple way for testers to modify test data.**

It's hard to make iterative test data with production data. If you want to test a specific scenario you need to have access to the exact test data that matches your testing requirements. A tester could try to update the test data manually (many do) but that is slow, complicated, and not scalable.

GenRocket removes the risk of stale data.

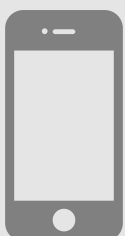👍 **GenRocket is easy to update when your data model changes allowing your team to focus on testing.**

ATDG removes the lag-time between the data model changing and test data access. As soon as the data model changes a tester can quickly update the entire team's data model in GenRocket. As soon as the data model is updated, Scenarios can be easily be downloaded and used by the team to generate test data.

👎 **TDM solutions have to deal with stale test data whenever the application's data model changes.**

TDM solutions require the storage of pruned test data sets which test data managers then distribute to their teams. As time goes on and the data model of the application changes that test data becomes stale and needs to be replaced and redistributed. This is a costly and slow process.

DID YOU KNOW?

GenRocket Supports Mobile Testing

Since GenRocket can generate data over Web services it is perfect for generating a high volume of realistic test data for mobile applications.

A GenRocket license is 8% the cost of a TDM license

👍 **GenRocket Professional is $1,500/license and GenRocket Enterprise is $3,000/license.**

A GenRocket Professional license can meet all of the test data needs for any application.

👎 **TDM solutions cost greater than $20,000 for a single seat.**

This cost doesn't even include the on-boarding and training fees.

GenRocket is easy to learn.

👍 **GenRocket is designed for anyone on your testing or engineering team to use.**

The GenRocket system is intuitive and requires only a few days of training. Since everyone on the team is trained on the system there is no knowledge gap left if someone leaves the team since everyone is on the system.

👎 **A company with a TDM has to hire a specialist to train and manage the TDM system.**

If the TDM manager leaves the company there is now a costly knowledge gap to fill since it takes up to 10 days to get trained on the system plus the cost of the training program.

DID YOU KNOW?
GenRocket Supports and Improves Load Testing

GenRocket changes the way applications can load test. Our method of load testing provides teams with key insights that would have been difficult to obtain before.

Before: Unintelligent Load Testing
Unintelligent load testing is using a high volume of test data that is not associated to actual user behavior. This strategy prevents teams from:

- Finding potential bottlenecks
- Verifying data is stored accurately
- Testing the back-end
- Testing the business logic
- Testing the database and hardware

After: Intelligent Load Testing
Real-time test data allows your load tests to test the following:

- Mimic your application's real world objects
- Maintain referential integrity of the parent-child relationships in your data model
- Control the true conditions of your load tests
- Ensures that your application's front-end and back-end business logic, database and hardware are being fully tested under load

5 Steps to Implement GenRocket

To implement GenRocket requires some setup steps. Let's take a look at the five steps to implement this system:

1. Import Your Application's Data Model into GenRocket

You can import your application's data model into GenRocket using Data Definition Language (DDL) files. You then establish the appropriate parent-child-sibling relationships of your application data model inside GenRocket.

2. Assign Generators for Unique Data

GenRocket uses a component called Generators to generate the specific data you want. Generators have the ability to talk to each other to generate more complex data including conditioned test data that follows specific business rules and logic. When you import your data model into GenRocket it will automatically assign the correct generator for basic data. For data that is unique to your application you can customize the data generation.

3. Assign Receivers to Format Data

GenRocket allows extensible formats of data to be created using a component called Receivers. The Receiver takes the generated data and formats it to your desired format. GenRocket offers over 20 different types of Receivers and more Receivers can be added based on customer request.
Example Receivers: XML, JSON, SQL, Web services, and JDBC

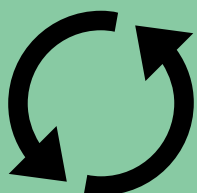## 4. Create, Download, and Run Scenarios

GenRocket Scenarios are a set of instructions for the GenRocket Runtime on how to generate the data you want. You create these Scenarios in the GenRocket Web App after you have specified the data you want to generate with Generators and Receivers. You then download the Scenarios to your local machine. With the GenRocket Runtime you then run each of your Scenarios. The runtime then generates the data on your local machine.

5. Use and Update your Test Data

After your data is created you are free to use for all of your testing needs.

Here is where GenRocket shines. When the application's data model or the testers data needs change it is easy to quickly adjust the test data Scenario's output in the GenRocket Web App.

Enterprise Class Test Data Generation

We know that enterprise applications are constantly updating and changing. Testers need a way to update their test data as fast as the data model changes to ensure Continuous Testing. GenRocket was designed with this specific need in mind. A tester can easily update the data model in the GenRocket Web App and quickly download updated test data Scenarios that reflect the new data model.

GenRocket Versions

GenRocket	GenRocket Professional	GenRocket Enterprise
	Powerful Test Data Generation	**Advanced Test Data Generation and Automated White Box Testing**
Software Description	*A comprehensive test data solution for any testing environment requiring model-based synthetic test data to streamline the testing process.*	*Same as Professional plus advanced test data generation features and the ability to automatically generate white box test source code to perform high volume unit testing and complex integration testing.*
Data Import: GenRocket can easily import data models from the following file types.		
• DDL Files • CSV Files • Salesforce Objects	**YES**	**YES**
Modeling Data: GenRocket can model the following types of data.		
• Realistic • Patterned • Conditioned • Random • Null Data	**YES**	**YES**
Data Output Format Examples: GenRocket provides over 20 output formats		
• XML • JSON • CSV • SQL • Delimited	**YES**	**YES**
Connection Protocols		
• JDBC • REST • Salesforce • Web Services	**YES**	**YES**
Data Generation		
• Unlimited Data Generation • 15,000 rows generated per second	**YES**	**YES**
Advanced Test Data Generation Features		
• **Project Version Copy:** This is for teams that support multiple versions of their product. • **Organization Variables:** This is for teams working with multiple databases that need to maintain referential integrity across multiple projects.	**NO**	**YES**

Supported Environments

GenRocket System

GenRocket is a combination of a web based and a local component:

1. **GenRocket Web:** A web based application that is accessed via a Chrome, Firefox or Safari Browser. Most customers access GenRocket on our secure public servers. GenRocket can be made available for our customers on their own private servers.

2. **GenRocket Runtime:** A Java runtime that executes GenRocket Scenarios on a local PC or server. The runtime is supported on all major operating systems: Windows, Linux and macOS.

Do you support my data format?

Each data format is supported through a GenRocket component called a "Receiver". We plan to offer a Receiver for almost all data formats. Visit the GenRocket web site to see the latest list of Receivers and if you don't see your data format supported today let us know your interest. New Receivers are added at no cost with the understanding that you will become a GenRocket customer.

About GenRocket

GenRocket helps software organizations decrease their business risk by enabling them to fully test their software. With our help, you can automate the most difficult part of generating test data and build the highest quality products. If you would like to implement an automated test data generation solution please contact info@genrocket.com and one of our representatives will reach out to you shortly.

Our Services

GenRocket offers the following solutions to our customers and partners:

- The world's only Automated White Box Testing solution
- The world's most powerful Test Data Generation system
- High performance testing consulting and related services

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