

# Hallmarks of a Great Tester

# Hallmarks of a Great Tester

Michael J. Hunter  
Test Technical Lead, Microsoft Expression

Michael "The Braidy Tester" Hunter is a Test Technical Lead for Microsoft Expression. Despite having developed for twenty years and tested for ten he is still amazed that he gets paid to play all day. Michael publishes his blogs and other good stuff at <http://www.thebraidytester.com>.



# Hallmarks of a Great Tester



Are you a Great Tester? I know that I'm not. I am very good in many areas, but I have areas I need to improve.

How about you? What one change would make the biggest difference in your testing?



# Hallmarks of a Great Tester



This is my friend Rob. Rob is the type of tester everybody wishes they could have on their team. Imagine a tester who is so good at finding bugs that his developers banded together to take him to lunch each day for months so that he would stop logging bugs for a while! That's Rob. (And that is a true story.)

But most of you can't have Rob on your team – and no one else can be Rob. You can, however, become more like Rob. Today I'll discuss twenty areas that must be mastered in order to become a Great Tester. For each I'll explain how to identify whether you are great, and then provide suggestions for coming closer to that goal. As I do, look for the tips that will take your testing to the next level.



# Hallmarks of a Great Tester

## Balances

One drawing program I tested had numerous bugs involving coordinate accuracy. On the theory that "no one is using our program to design nuclear power plants" we decided not to fix most of these bugs. Later we learned that people actually were using our program to design nuclear power plants. Suddenly tolerance bugs became more important.

Great testers know that balance is important in everything they do. They also recognize that the correct balance varies across each situation they find themselves in.

"Correct" is often hard to define, so you must balance your desire for understanding with your need to make a decision and get things done. Improving your sense of balance is simple. Balance is part and parcel of each of the other hallmarks I will discuss today, so as you improve your skills in these areas you also improve your balance.



# Hallmarks of a Great Tester

## Character Traits

The first set of hallmarks are several of the character traits every great tester displays.  
Do you?



# Hallmarks of a Great Tester

## Curious

Curiosity is the reason a great tester wants to understand why everything works the way it does. They know that understanding how something works leads directly to understanding how it interacts with other somethings, which leads directly to bugs. A great tester manifests this curiosity in every aspect of their life, learning not just what makes their application tick but also how marketing works, how construction cranes build themselves, and on and on.

If you aren't inherently curious, develop the ability to come up with an endless stream of questions. Apply this ability to everything you come into contact with. Question your way through the design of your features. Don't forget features that are already "complete". The decisions presumably made sense at the time they were made, but the situation may have changed.

I don't think you can be too curious, but it can get annoying. Make clear that you want to understand people's reasoning and aren't simply questioning every decision they ever made.



# Hallmarks of a Great Tester

## Practices constantly

A great tester goes beyond feature boundaries and tests the entire product. A great tester tests other products. A great tester tests books, refrigerators, lights, doors...anything in any part of their life that makes them go "I wonder...".

For example, when Rob and I ran across a piano with a touch screen, we immediately started looking through the various screens. It didn't take us long to discover that printing when no printer is connected crashes the piano.

Opportunities to practice exist everywhere you go. Start availing yourself of them by testing vending machines, automatic doors, your microwave, whatever. Imagine what could go wrong with each thing you encounter, then find out whether you can make any of them happen.

Make "Test Everything" your default mindset, but don't take it too far. I have a friend whose friends get grumpy when she tests their artwork!



# Hallmarks of a Great Tester

## Devious

A great tester can move beyond the checklists that fill many books on testing and dream up an endless series of gnarly methods for attacking the program. For example, recently Rob found a specific set of steps that brought his application down in flames – but only when run in high contrast mode! When great testers find yet another bug that makes their developer ask "Why in the world would you do that?", Great Testers answer "Because I can! Oh, and because Evil Hackers will, and because Harried Users might".

If you weren't born devious – or you just aren't as devious as you would like to be – here's how to fake it: Think about every thing that could possibly go wrong. Your specification is a good starting place, but don't stop there. Try approaches such as the HICCUPP mnemonic James Bach espouses (c.f. web search for "james bach hiccupp"). Apply these techniques across the breadth of your application, focusing on the integration points between features. That is where deviously Great Testers spend their time.

Be mischievous. Also bear in mind, however, the expected uses of your product. While any bug is a good bug, most important to find are those that are most likely to affect your customers.





# Hallmarks of a Great Tester

## Excited by bugs

A great tester thinks bugs are cool. Remember Rob's "Guess what I just found" grin? A great tester shows up in a developer's office on a regular basis eager to show off the latest nifty keen way subtle horridly awful bug that the tester found in the developer's code. A great tester boasts about bugs to other testers and eagerly listens to other testers' exploits. When they go home in the evening, their families can tell whether they found any good bugs that day.

To become great in this area, learn to take pleasure in finding mistakes and inconsistencies in your own code and material. As you do the same with your developer's code and your program manager's specifications, remember how you feel when one of your bugs is pointed out to you. Keep in mind that your goal is to help your coworkers look good by catching mistakes they make, not to rub their faces in them.

To paraphrase the commercial: Finding a nasty bug: cool. Your developer groaning when they see your grin: even cooler. Keeping a good relationship with your developer: priceless.



# Hallmarks of a Great Tester

## Passionate about customers

When I think of customer passion I think of Ronnie. Ronnie was active in user forums. Ronnie was invited to work the booth at trade shows. Ronnie not only understood what his customer needed to do, he looked beyond these immediate needs to see how his product could revolutionize their tasks. Ronnie got his customers.

A good way to become this passionate about your customers is to do what Ronnie did: feel their pain. Picture the impact the bugs you find will have on them. Read what they are saying in forums and on blogs. Visit their workplace to talk with them one-on-one and see the problems they are having firsthand (every senior tester at Microsoft does this!). If you're feeling especially brave, spend some time working with your help desk.

Also important is to use your product yourself, even – or especially – if you would not normally do so. For example, when my friend Scott began working on an application for smartphones he purchased one and integrated it into his daily life.

This is important, so I'll say it again: feel your customers' pain.



# Hallmarks of a Great Tester

## Approach

Great testers take these character traits and apply them to everything they do, supported and enabled by the next set of hallmarks. How does this match with how you approach your day?



# Hallmarks of a Great Tester

## Sees the big picture

Great testers start by thinking up ways to build testability into every aspect of their product. A great tester analyzes the product's architecture, design, and features, and develops a plethora of ideas for ensuring the product can be controlled and its relevant internal data made visible. A great tester keeps in mind, though, that testability is just one factor affecting the application and helps the team create the right mix.

Remember that your customer does not want to test your application but rather simply use it. There are at least three ways to solve any problem; be creative in brainstorming additional ways to test your area. Being able to cover only most of your test cases somewhat less deeply may be an acceptable tradeoff. Keeping the big picture in mind will help you balance these many concerns.



# Hallmarks of a Great Tester

## Prioritizes

Keeping the big picture in mind helps great testers prioritize the testing they do. One of my features is cut-copy-paste. My first brainstorming session resulted in more than 450 test cases, and that was just for the "garden path"! I knew, as does every great tester, that I would only be able to run a fraction of those test cases. A great tester prioritizes and scopes their tests so that the tests most likely to find the bugs most likely to affect the customer are executed first.

Applying this strategy effectively requires knowing who your customers are. If you think you only have a single customer, think again. What about the people for whom your users are performing their work? Your tech support group? All of these and more will be affected by the scoping you do and the bugs you find and don't find.

Be involved with the design of your feature from initial discussions through implementation and every bug fix. Talk with your developers to understand what they think is important to test and how dependencies affect your feature. Keep track of where you have and haven't been recently. But remember to trust your instincts – if your gut is telling you to look at something, listen to it!

Regular reprioritization is important, but too much will leave you with analysis paralysis. It doesn't matter how perfect your priorities are if you never implement them!



# Hallmarks of a Great Tester

## Notices

As great testers execute their tests they keep watch for things that are not quite right. Some years ago I was testing an application that could be customized by using a built-in dialog definition language. One day I noticed that when I clicked a radio button, one of the other radio buttons in the list became disabled. Eventually I found a reliable repro and started spelunking through the code. After awhile I identified the culprit: a bitfield integer was silently being converted to a short integer, changing its value.

This was a simple programming error, but those are often the source of nasty bugs. I later found out that customers had been complaining about this problem for some time, but that no one had been able to find a reliable repro. By first noticing this small oddity and then doggedly digging into it, I got from "That's weird" to "That's what's going on!"

Noticing when things are out of place requires first learning what's normal, so know your application inside and out. Beyond that, hone your observation skills. Focus on the details across your entire application and follow up on anything that seems the least bit out of place. Know that your application is broken and watch for oddities that prove it. But don't get so distracted that you miss obvious bugs staring you in your face!



# Hallmarks of a Great Tester

## Precise

When great testers do find a bug, they take the time to narrow it down to the minimum number of steps necessary to reproduce it. They test around the bug to understand what it actually is. Great testers write bug reports that state the bug exactly and clearly distinguish between what is what is conjecture on their part and what is proven fact.

Lots of practice and feedback is vital in order to achieve greatness in this area. Put yourself in the shoes of your developer and make the exact nature of the problem obvious to them. Assume that the person reading the bug doesn't know anything about your area – even your CEO should be able to understand and judge the risk represented by your bug reports. Make clear what the expected behavior is, and why the actual behavior is incorrect. Explain how this bug will impact your customer.

In other words, write the bug to be fixed. Before that can happen, however, you must first finish your research and get it logged. The appropriate point for doing this is different for every bug, but with practice you will know when you are close enough.



# Hallmarks of a Great Tester

## Stands their ground

Despite precise bug reports that make clear the customer impact, great testers are sometimes faced with the need to force the issue to get a bug fixed. A great tester is willing to be obstinate and obdurate and to ruffle feathers when necessary.

Before going to these lengths, though, consider whether you simply haven't given management sufficient information to recognize the impact the bug will have on your customer. Or perhaps they have information you do not that takes priority over your bug. A great tester combines these considerations with a strong customer focus to decide whether an issue is worth standing up for.

When you do stand your ground, remember that you do not have to be rude or inconsiderate. Make alliances with groups such as tech support and marketing to buttress your case. Calmly show why the bug must be fixed and convince the rest of the team that it indeed can't be shipped.

Your reputation is very important here. If you cry wolf very many times people will stop listening. So think the problem through, investigate it thoroughly, and be sure you have enough information to make your case. Then consider whether the issue is really important enough to warrant spending one of your Free Bug Fix cards.

When you do, be polite, remember that it's ultimately not your decision, but also be firm.





# Hallmarks of a Great Tester

## Picks their fights

While great testers are willing to stand their ground when necessary, they also know when to stand back. Every great tester knows the pain of having to let an important issue go. A great tester recognizes that fixing every bug is often not worth the resources that would be required. A great tester knows that some bugs must be shipped so that other bugs can be fixed.

As an example, a friend of mine tested a program whose foreign file format import and export was completely rewritten, resulting in so many problems that just fixing the most important crashes was a challenge. My friend used his long experience in the target industry to evaluate workarounds and to determine the likelihood of customers hitting individual bugs. In other words, he provided information that let management decide which bugs to fix.

Remembering that you are providing information is key. Your role is not to make decisions but rather to provide sufficient information that management can make decisions. At the same time, your job is to advocate for your customer. My friend certainly pushed to have certain bugs fixed – or not fixed, in some cases. Pick your fights carefully to help ensure that your customers receive the product they deserve.



# Hallmarks of a Great Tester

## *Foundation*

The last set of hallmarks I will discuss today helps you be maximally effective in applying your Great Tester character traits to the testing you do.



# Hallmarks of a Great Tester

## Focuses

A great tester knows that finding and isolating bugs to their root cause requires focus. A great tester doesn't ignore bugs found along the way, but they usually postpone investigating them until the current bug is nailed. (And, of course, gleefully told to the corresponding developer. And boasted about to other testers.)

Staying on track requires making a plan and sticking to it. Before you start a testing session, take the time to develop a charter for how you will spend your time. (And then have a Great Tester review that plan!) As you work through your plan, note every side alley you come across, but stay focused on your primary task. Once you have drilled into and documented the mainline problems, go back and visit each of those side alleys. As you do, repeat this process: note back passages you find along the way so you can find them later, but stay focused on the side alley you're in.

As you find these side alleys and back passages, don't just blindly note them in your lab book and move on. Sometimes they are chock full of bugs that are much more important to identify than any that might still be lurking on the thoroughfare you are currently on. Changing your focus due to new information is always OK.

(For more information on charters, check out the information on Session-Based Test Management at <http://www.satisfice.com/sbtm/index.shtml>.)



# Hallmarks of a Great Tester

## Seeks help

A great tester takes pleasure in a challenge and so enjoys banging up against a brick wall and slowly breaking through it. Some walls are thicker than others, however, and sometimes the wall has a tester-size hole that the tester continually manages to miss. A great tester realizes when it's time to ask for help and does so, and they know who to ask.

This requires balance. You want to figure problems out on your own, but you don't want to spin your wheels either. Work with your manager to define some time limits after which you will ask for help, then honor these time limits.

Even knowing you are supposed to ask for help, it can be difficult to admit that you need help. Overcome this by realizing that not asking questions may sacrifice your area's quality or adversely affect your testing. People will recognize that asking for help is the right thing to do and respect you for having the guts to do so. A great tester knows there isn't any shame in asking for help.

If you aren't asking questions on a regular basis, something is very wrong.



# Hallmarks of a Great Tester

## Speaks Dev

Visitors to a foreign country are well advised to become familiar with the language and customs of the country, enough so that they can get a cab back to their hotel, ask for directions to the bathroom, and know whether shaking hands is the height of civility or completely gauche. Likewise, a great tester is familiar with the language and customs of developers.

If your developers use UML, learn it well enough to understand and draw diagrams without making them laugh out loud. Learn to write code at least as well as first year programming college students; simply auditing a few college overview courses will give you much of the necessary knowledge. Talk with your developers to build a general understanding of the major components in your application. Learn design concepts sufficiently to participate in design discussions and reviews and not be asked to leave the room. Most importantly, have the confidence to ask questions and not feel stupid about doing so, and learn how to learn.

When you become great in this area, your developers may tell you, as mine tell me, "You find the bugs. You show me exactly where the problem is. Now if you will just go ahead and make the changes I won't have to do anything!"



# Hallmarks of a Great Tester

## Invests

A great tester knows that the only way to continue to be a great tester is to never stop learning. Continual learning is one of my most important personal values. Case in point: I took a C++ book on my honeymoon! My current management actively supports my continuing education, but even when I was in less supportive environments I got the training I required. You can as well.

To find the time for training, look at everything you do and identify a few tasks you can drop in favor of training time. Management is driven by risk and reward; gaining their approval is a simple matter of showing why the reward from taking time for training is worth the risk of "losing" it.

Think about ways to create bigger payoffs from your training. For example, when I was looking to work on my presentation skills I developed and taught a course for my coworkers on our application's scripting object model – giving both my team and I the training we needed. Go beyond testing and learn about marketing, cognitive psychology, and anything else that is remotely related to the process of creating software (which is pretty much anything).

Investing in yourself is the best way to improve in any of these hallmarks.



# Hallmarks of a Great Tester

## Sees bugs

A great tester knows that if an application seems to be bug free it is really full of bugs they haven't thought to look for. A great tester views every bug found by a customer as a sign they missed an entire class of bugs.

This point of view will come naturally once you understand how complex even the simplest program is, and how unlikely it is that every possible case will be handled correctly. Think about the many layers on which your application is built – all the way down to the hardware. Ponder the chances of all this working correctly.

Look for holes in the testing you have done so far. Listening to your customers is a good place to start, for users have this funny habit of using your software in ways that you didn't predict. In fact, working with customers is the best way of finding bugs I know!

Whether you find them or not, bugs are everywhere. Great testers want to find them.



# Hallmarks of a Great Tester

**Honesty**  
**Integrity**  
**Courage**

Finally we come to three traits that underlie each of the others. As Jerry Weinberg says, "Without integrity, and the courage to stand up for it, you'll simply become road kill on the development highway – flatter and flatter as each day goes by." Honesty, integrity, and courage are the foundation on which a Great Tester stands.

If you aren't honest about the state of your application, either it will never ship (if you say it's in worse shape than it really is) or a bug farm will be foisted on your customers (if you say things aren't as bad as they really are). People's sense of your integrity is inextricably linked to your reputation; improve one and the other will follow. Finally, being courageous is easier when you sincerely believe you're in the right. Working on each of the other hallmarks will help you find the courage to stand up for your customer when necessary.

Growth in these hallmarks goes hand-in-hand with growth in each of the others. Just as it takes less energy to speed up a car the faster it is moving, becoming a great tester is easier the closer you get. Increasing your honesty, integrity, and courage will speed your progress in the other hallmarks; practicing those hallmarks increases your facilities with these qualities.

Road kill or a great tester – it's your choice.





# Hallmarks of a Great Tester



And so it comes back to Rob.



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# Hallmarks of a Great Tester



Balance in everything a great tester does.



# Hallmarks of a Great Tester



Character traits every great tester exhibits.



# Hallmarks of a Great Tester



Application of those character traits to their job.



# Hallmarks of a Great Tester



Foundational skills that every great tester has mastered.



# Hallmarks of a Great Tester



The honesty, integrity, and courage that underlie and support each of the other hallmarks.



# Hallmarks of a Great Tester



Even if you are a complete newbie at testing, you can become a better tester by simply following these guidelines and developing these traits. To become a Great Tester, though – to become like Rob – you must take each of them to heart. They must become second nature. Do that, and everyone you work with will say, "Now **that** is a Great Tester!"



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