

Windows Error Reporting: Elementary, My Dear Watson

WER

What data does Microsoft gather and how is it used?

“It’s like pressing the button for an elevator over and over: It doesn’t do anything, but boy, it makes you feel that you have some input.” Like the reader who made this comment, most respondents to our survey about Windows Error Reporting (WER—formerly “Dr. Watson”) are skeptical about whether reporting errors to Microsoft has any effect on product quality. Readers also would like to know what data Microsoft collects and how it uses and secures that data. But most of all, readers just want Microsoft to let them know that pressing the button does make a difference.

Readers’ responses to our survey gave rise to an interesting interview with Microsoft’s Ben Canning (group program manager, Office Trustworthy Computing). Because I have so much information to share, I’m making this a two-part column. This month, I cover the WER process, explaining what data Microsoft collects and how the company protects it. Next month, I’ll discuss Microsoft’s Corporate Error Reporting (CER), a tool that lets Software Assurance customers manage how WER is used on their network and review collected data before sending it to Microsoft; Ben’s examples of specific improvements to Microsoft Office as a result of WER; and how Microsoft is addressing your desire to know that reporting crashes pays off in better products. In addition, I’ll give Ben’s answers to your concerns about how end users interpret WER dialog boxes and how those perceptions affect IT support costs.

Familiarity Breeds Contempt?

Just about everyone (94 percent of the 472 survey respondents) is familiar with WER. However, nearly half of respondents rarely or never click Send when they see a WER dialog box. (“What’s the point of the feedback when Microsoft doesn’t listen to us?”) Only 9 percent always send a response, and 16 percent respond half the time.

Sixty-four percent don’t inform end users about WER, and 74 percent don’t encourage users to submit data. Common reasons include, “My end users’ time is better spent on their work,” “Users are already mad that their application crashed and they have possible data loss,” and “Error reporting confuses people.” (One respondent elaborated on end-user confusion: “It’s not worth their time, and they would think they were responding to my Help desk” instead of to Microsoft.)

If you don’t know what happens to data submitted to Microsoft through WER, you’re like 72 percent of survey respondents. Most respondents have never (42 percent) or rarely (41 percent) received a response to a crash from Microsoft. So it’s not surprising that 55 percent said they don’t know whether WER has helped Microsoft improve the functionality and efficiency of Office applications. Only 29 percent believe WER has helped, and 15 percent believe it hasn’t.

One Crash, One Vote

Because so many people are skeptical about WER, I asked Ben to explain how it works and what benefit users get from reporting crashes. “One way to think about reporting a crash is that you’re voting for Microsoft to fix the problem you just had. At a high level, the information sent to us is just a set of simple parameters that say this problem occurred at this point in this piece of software, this version, in this executable, at this line. That gives us a unique identifier of what



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crash just happened, so we can keep count. By keeping count, we can prioritize and start working down from the top to fix the issues customers see most often.”

One typically frustrated reader said, “Since I’ve never seen a response to a crash, I started clicking Don’t Send because I felt sending was worthless.”

But Ben maintains that “The more annoying a crash is to you, the more I’d recommend you send us the data. The more votes it gets, the higher it gets on the list. We find that if we can fix the ones at the top of the list, we’re wiping out vast swaths of problems.”

Some readers believe that Microsoft should fix problems *before* users experience crashes: “It’s too bad we even need the vehicle to report errors. A longer beta and less frequent versions would produce better code and happier end users.”

Ben replied, “We work very hard to eliminate problems before we ship. We use error reporting inside Microsoft, and of course we do testing. (We typically



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Microsoft’s Windows Quality Online Services (Winqual) lets third-party developers access WER data about their applications. For details, see <http://www.microsoft.com/winqual/maintain/StartWER.aspx>.

Hey Microsoft! | Windows Error Reporting

have one tester for every developer, which shows we take testing very seriously.) We eliminate as many problems as we can find and get the product stable. Then we release it to customers.”

I asked Ben to elaborate on how Microsoft developers use error reporting. He explained that WER “is integrated throughout our development cycle. Internal users send crash reports as we’re developing the software. We log our crashes as bugs, and the developers fix them. As we move into beta, we look at customers’ crash reports. We have a process in every beta—we call it a *Watson push*—where we set a goal for how far down the prioritized error list we can go to address the most frequently occurring crashes. We march down that list and fix the top problems reported.

“WER lets us have betas with more customers and still gain value. The more customers in the beta, the more data we get about problems and the more accurate we can be in determining what order to fix things in.”

Data Collection and Protection

Readers asked, “What data do you really capture?” and “How can I be sure the information provided to WER is kept secure?”

“We can get three levels of information,” Ben explained. “About 90 percent of the time, all we get is application name, the ver-

sion, the module, and the specific line of code that was executing. That’s enough for us to increment the counter that tracks how many people are seeing a particular crash.”

The second level is a minidump. “For example, the first 10 or so times we see a specific error, we collect a minidump, which contains debugging information.” In that case, the user who reported the error receives a WER message requesting permission for Microsoft to gather further information. “Very specifically,” Ben continued, “a minidump contains the call stack, the code that was executing when the failure occurred, and some information about memory registers and so forth that’s useful for the developer in debugging. It does not typically contain any personally identifiable information. In other words, we don’t intentionally collect any information about who or where you are, the contents of your document, or anything like that.”

Typically?

Ben emphasized, “I qualified that because we’re grabbing a chunk of memory. It’s possible that where you crashed, you were typing in something that is personally identifiable—for example, your email address—and that’s in the chunk of memory. So I can’t categorically say we never collect personally identifiable information. It’s possible, but we don’t typically. And we don’t do anything in the way the data is stored to try to find that kind of information. If a customer is uncomfortable sending information, I’d much rather they not send it.”

What’s the third level of information? “With customers’ permission, we can also collect such information as a full system memory dump, or particular registry keys, or the user’s documents,” Ben replied. “If we need that information, it’s because we’ve looked into the problem and can’t figure out how to fix it without additional information. Our server sends a dialog that says we need to collect more data, tells what specifically we need, and asks permission to get it. We rarely ask for that information because

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Weigh In on Our Instant Poll

Has this article changed your mind about how you respond to WER dialog boxes?

- Yes; I'll be more likely to send error reports now.
- No; I'll continue to send error reports with the same frequency as in the past.
- No; I never send error reports and won't start now.

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typically we don’t need it. You can always say no.”

Survey respondents also worry about data security. “With all the leaks of private data from major companies, how can I be sure the information provided via WER is kept secure?”

Ben assured me that all data is transmitted securely over HTTP Secure (HTTPS). “All WER information is stored in a secure data center. To access the information, a Microsoft employee has to sign a data-use policy that details exactly what the information can and cannot be used for. Basically, that policy is that developers can use this information to identify and fix a problem in the software, and that’s it. There are severe penalties for anyone who might try to contravene that policy.” For a detailed explanation of Microsoft’s data collection policy, what data the company receives in a WER transmission, and how that data is used, see the WER data collection policy at <http://oca.microsoft.com/en/dcp20.asp>.

Closing the Loop

So what about those frustrated customers who keep pushing the button but never hear from Microsoft? Ben said, “You’re right—the data shows people aren’t seeing a lot of response from us. That’s definitely something that we need to work on.”

Ben emphasized, “Error reporting has revolutionized development at Microsoft. It changed everything about the way we do our development process, sustained engineering, and service packs. The amount of improvement that we’ve made as a result is tremendous. The good news is we’ve done a lot. The bad news is we’ve done not a great job of showing customers the results.”

I’ll have more about that next month.

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Learning Path

Windows IT Pro Resources

Learn about the error reporting program for Microsoft Office

“Casting a Quiet Vote for Office 2003,” InstantDoc ID 42515

Other Resources

For an overview of WER for end users

<http://oca.microsoft.com/en/duf20general.asp>

Review the WER data collection policy

<http://oca.microsoft.com/en/dcp20.asp>

For information about using and configuring WER on Windows Server 2003

http://www.microsoft.com/technet/prodtechnol/windowsserver2003/technologies/security/ws03mngd/23_s3wer.mspx

WER for developers

https://winqual.microsoft.com/help/wer_help/dev.aspx

Directions for accessing the Winqual service

<http://www.microsoft.com/whdc/maintain/StartWER.mspx>



Can You Hear Me Now?

Exchange 2003 SP2 goes mobile

I'm addicted to my CrackBerry—I mean BlackBerry. That's a difficult admission to make when you write for a Windows publication. But I happily accepted a Research In Motion (RIM) BlackBerry after years of frustration with synching various models of Pocket PCs and not having continuous email or up-to-date calendar access when away from my laptop. As a frequent traveler and a remote worker, I depend on email, phone, and Internet access to do my job. I loved being able to keep up with email while on vacation in Greece last summer. Or maybe I just fit in the category that one of this month's survey respondents summed up as "email obsessive—certain managers can't stand the thought they might miss an important email while they're away from their desk." Be that as it may, our survey this month shows that zealous users like me are causing IT pros like you support headaches and making you demand better management and security tools.

Interestingly, according to our survey, as a mobile-device user I'm in the minority. Although more than 70 percent of IT pros surveyed support mobile devices, nearly 66 percent of those respondents report that less than 25 percent of their workforce uses such devices. Only 6 percent said that more than three-quarters of their workforce uses mobile devices.

So most of you are supporting a small group of mobile-device users, consisting mainly of managers and sales and service professionals. And you're likely using Exchange, which is the messaging server for 84 percent of respondents. The question this month is whether Exchange Server 2003 Service Pack 2 (SP2) and the complementary Windows Mobile 5.0 Messaging and Security Feature Pack will make Exchange competitive with RIM and other mobile solutions and allow you to consolidate your email and messaging technology with an end-to-end Microsoft solution. I took the survey results and your questions to Microsoft's Exchange and Mobility teams.

SP2 and Windows Mobile Enhancements

I started by asking how IT needs match up with SP2's features. (For an evaluation of SP2, see "Exploring Exchange 2003 Service Pack 2," November 2005, InstantDoc ID 47792.)

Martha DeAmicis (product manager, Exchange) responded. "A lot of your survey feedback related directly to enhancements we put into SP2 and the feature pack. For example, we're enabling mobile email using the

existing Exchange infrastructure. We want deploying mobile email to be a simple check box, and we want security so folks can lock down devices. A lot of feedback related to RIM."

Much of that RIM-related feedback was about RIM's server infrastructure and BlackBerry devices—all of which Microsoft is eager to replace with Exchange and Windows Mobile. For instance, survey respondents asked Microsoft for features such as "push technology—the need to synch (even wirelessly) is annoying when RIM and [Good Technology's] GoodLink offer more" than Microsoft.

Microsoft's message to RIM users, explained John Starkweather (group product manager, Mobile and Embedded Devices—MED), is that unlike RIM's solution, Exchange SP2 does not require you "to add servers at additional cost and licensing to extend information that's on your Exchange server. You have a license for your employees to access information from Exchange in any way, from any device. BlackBerry, Palm OS, and Symbian OS have features that particular users enjoy, and we'll continue to compete with those devices and on user experience. The Windows Mobile platform includes a variety of devices and the ability to view attachments and applications. We think BlackBerry users will eventually come over."

IT Pro vs. Mobile User Concerns

Getting users to switch to Microsoft's offerings could be hard. Many survey responses indicate that IT has to support the devices users want. Typical comments were "I had no choice. I have to support whichever devices management decides to use," and "We were not consulted. The devices were forced on us."

When users are comfortable with a particular device, not only are they loath to switch, but introducing new technology causes additional work for IT. The most frequently cited challenge by survey respondents was that lack of end-user competence and the need for training are a drain on IT. One reader said, "End users should have a certain level of technical competence." Another respondent was exasperated trying to "keep users from pushing every button on the device and then saying it's acting funny."

Because Microsoft product teams generally think of themselves as either IT oriented or end-user oriented, it's often difficult to find Microsoft people who think in terms of helping IT deal with user training needs. Such needs are



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» Did You Know?

SBS 2003 R2 incorporates all the Exchange 2003 SP2 features and supports the Windows Mobile 5.0 Messaging and Security Feature Pack.

considered Help desk issues and therefore tend not to be a priority for Microsoft because Help desk personnel are not perceived as having purchasing influence.

Microsoft wanted me to tell you that this attitude is starting to change. The company claims a significant portion of the new enhancements available in SP2 and coming in the next version of Exchange (code-named Exchange 12) specifically target improving and simplifying the end-user experience, and thus relieving the burden placed upon IT.

In my opinion, which is informed by the surveys I've

How much money would you save if you could reduce Help desk calls related to Microsoft products and focus your IT staff on infrastructure?

Management and Security

Of course, end-user training isn't the only way Microsoft can make mobility support easier. IT pros also need integrated tools for managing devices and infrastructure. "I want to manage devices with Systems Management Server (SMS), Microsoft Operations Manager (MOM), Windows Server Update Services (WSUS), unattended instal-

The need to synch (even wirelessly) is annoying when RIM and GoodLink offer more than Microsoft.

done, simplifying end-user *training* is a way that Microsoft could help IT pros reduce Help desk calls and improve ROI. Simplifying the end-user *experience* doesn't address the need to help IT transfer skills to users.

lations, scripts, and all the other tools already available," said one respondent.

Warren Ashton (group product manager, Exchange) agreed. "A hodge-podge of solutions has been cobbled together because end users are bringing devices to the table and IT has to figure out how to deal with them."

Chuck Sabin (product manager, MED) asked, "Would you rather manage from Exchange or a separate solution? There's something to be said for managing users from Exchange—managing preferences or managing them as mobile users with the ability to connect to mail. But some customers want to use the same existing solution that manages software updates, or policies, or similar things for laptops, and leverage that management solution for mobile devices. We've been trying to figure out what that tradeoff point is. At what point are you managing the devices or preferences within the messaging profile, versus at what point do you manage through SMS? There's a whole set of policies associated with battery life or tweaking certain settings or security. So, there's a balance. We've added some of those capabilities to SP2 for doing password enforcement, local and remote wipe [i.e., erasing the contents of a mobile

Interact!

Can We Talk About That Offline?

Many survey respondents had questions for Microsoft that we didn't have room to answer in print. Our Web-exclusive sidebar provides Microsoft's responses to additional reader questions and comments.

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device), and enforcing certificate authentication versus using corporate credentials. But we think the trend is going more toward leveraging the existing management solution and less toward a separate infrastructure for mobile versus an infrastructure for laptops and everything else in the network."

Kristi Larsen (IT pro marketing manager, MED) said, "Going back to the survey and the business needs for mobility, two things were interesting. One was network monitoring. A question about MOM was whether a MOM client could be on a mobile device so that the admin could see what's on that device from the MOM console. For me that's a good thing to learn, because we always talk about the end user being up-to-date with email, but the IT person's life is the network console."

Warren summarized the management discussion. "The IT pro can now say, 'I need to make this simpler. I need to lower the cost of operating this convoluted, cobbled-together approach that's been going on for the past 5 years. I'm putting a line in the sand. This is how we are going to manage mobile devices. Users have options, but IT will build more structure, simplification, and lower cost into how we maintain this technology.'"

Meeting the Needs?

The Microsoft teams I interviewed were pleased that the survey results supported their findings about what you want from Exchange and Windows Mobile. Indeed, one reader said, "I think the features in Exchange 2003 SP2 are addressing most of my concerns." Do you agree? If you're deploying SP2, tell me your experiences. Oh, and let me know if your users are willing to trade in their BlackBerries for Windows Mobile devices.

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Learning Path

For information about Microsoft's future plans for Exchange:

"The Exchange Roadmap," InstantDoc ID 45228

"What You Need to Know About Exchange 12 (E12)," InstantDoc ID 45880

To learn about Microsoft's testing program for Exchange 2003 SP2:

"Testing Exchange 2003 SP2," InstantDoc ID 47507

For information about Exchange's mobile device support:

"Exchange's Mobile-Computing Support," InstantDoc ID 42352

"Making Exchange ActiveSync Work," InstantDoc ID 45360

"Safeguard Exchange for Mobile-Device Access," InstantDoc ID 42351

To read the Microsoft Exchange team's blog:

<http://blogs.technet.com/exchange>

