

Chris DeVisser

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Prof. Jay Dolmage

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### **My High School Solution to Lost Flash Drives**

Back in 2011, it was around the third year of high school for me. As time progressed, my friends and I were slowly discovering our love of programming. All of us took a number of computer classes. I spent almost every lunch and free period in the computer lab. It turns out that you can make Windows do a lot of cool stuff, but let's face it, we were teenagers. What could be more awesome than coming up with brand new ways to troll your friends in the middle of class?

Naturally, our high school had put restrictions on the computers that we used day in, day out. This included the usual restrictions like not being able to use the official registry editor, but also restrictions we found more annoying to our everyday computer use. Not being able to right-click the desktop comes to mind. Now I don't know about you, but I'm a bit of a perfectionist. I will absolutely sacrifice hours of learning and development time to save 5 seconds in convenience every now and then. I made it my goal to improve my school computer experience or die trying. Being faced with computers that I used every day and no computer of my own, I saw it as a challenge to make my experience as convenient as possible. Sure, our programs wouldn't be part of the "official, board-approved software" we were allowed to use, but you can't win 'em all. As the school used Windows XP, we started by self-learning how to make workarounds for missing Windows 7 features. Before long, we had set our sights higher.

We had enough conveniences to accommodate the queen. However, needing to set up our custom experience every time we logged in was tedious. We wanted to be able to automate this with a script when we logged in, but these “logon scripts” were not available for us to use by the school. Not with that attitude at least.

One day, we finally found our answer. To tell the truth, it was an accident. One of my friends had put a third-party registry editor into his documents folder. Next time he logged on, he noticed that this program was run several times. We were ecstatic. We used this to our advantage to make the logon scripts we so desired. Resolution change? Check. Hotkeys for everything? Check. Windows 7 features? You’d better believe it. Nearest and dearest to my heart, though, was my flash drive. Day by day, everything I cared about was on that \$20 stick. With no laptop, I mean everything. Including... my entire school workspace, desktop and all. Though computer magic, I could now log in and my desktop would load from my flash drive. I felt like some kind of villain every time the network was down and I was the only one around who could load my desktop. Best of all, I never had to worry about copying important files to my flash drive – they were already there! Because of moving between school and home every day, my flash drive acting as a common workspace was life-saving.

We loved the success we had, but we still didn’t know why it worked, and hell if we weren’t going to figure it out. It’s similar to the feeling I get when I have a small piece of a song stuck in my head and I can narrow down where it’s from to 10 hours of music. I will drop everything to figure it out. Needless to say, we desperately wanted an answer. And one day, we found one. In a semi-hidden network location, we discovered the school’s logon scripts, along with those of all other schools in the board. However,

within these scripts, we also found credentials for a curious network account. It was a special-purpose account that didn't have access to much, but it fueled our desire to expand our power. One thing we had set our sights on for a while was printing without using our allotted credits. We quickly managed to do this for one line of text. More importantly, we found out how to change the message displayed on the printer. I'd be lying if I said we didn't get our money's worth out of that. Regardless, we eventually figured out how to print anything we wanted without credits. We also found out how to print to any printer in the school board. Knowing we could was enough for us. Around the same time, we also defeated the software used by the school to let teachers monitor and take over students' computers. No big deal, but again, knowing we could was a reward in itself.

We continued to have fun ravaging the restrictions imposed on us and set our sights ever higher. Eventually, we were looking for admin privileges. While we would never interfere with the school, we were excited by the prospect of finding out that full control could be possible. In a twist more surprising than Dumbledore, I pretty quickly came up with an idea that could actually work. It was essentially a worm that would spread to students, doing nothing until it reached an admin account. I made a proof of concept, but went no further. We soon discovered a more direct method anyway. As time passed, we became more and more like gods. Eventually, we had the power to run any program on a computer of our choosing. Naturally, we used this power to troll each other. Making a window move away from the mouse cursor? Why not? Inserting the word "SPACE" when you press the spacebar and then inserting "BACKSPACE" when you go to delete it? Hilarious. Full-screen video of Rebecca Black singing "Friday" that you

can't close until it's over? Come on, we were high school students. Of course we were going to do it. We were determined to have as much fun with each other as possible. Among others were turning the keyboard into a piano, a fake blue screen of death, and switching the keyboards of any two computers without rearranging any physical cables. As fun as all this was, I devised something even better.

Two years past the start of all this, my flash drive was still very important to me. I used it constantly, at school and at home. Yet for something so important, I was unnaturally good at losing the stupid thing. What if... I could find one after losing it? Well, it just so happened that I had essentially limitless power throughout the school. What more would I need? Thus was FDR born. Flash Drive Recovery. A piece of software as dear to me as my beloved flash drives themselves.

It starts with registering the flash drive. With the simple press of a button, the program would figure out a unique ID for the drive and record it in a file. Later, I would inevitably lose the flash drive. At this point, another simple button press and the system would spring into action. With FDR running on every computer when booted, it would look for any USB devices being plugged in. When this happened, it could compare the unique ID and check for matches with the lost flash drives it was looking for. Should it find one, it would record the time, user, computer, and room. This information would be accessible only to the owner and me, and then the fun part – the hunt – could begin. From the username, we could easily obtain the student's real name to meet with them. The computer, room, and time would easily determine which class was there, if any, and let's just say it was pretty easy for us to meet with the person in question later if we couldn't catch them soon enough.

After some testing, the time I was waiting for came. I “lost” a cheap flash drive and waited. Later that day, I noticed it being used. Making my way to the computer where the flash drive was used, I was able to find it. Success! But FDR’s true moment would come later that year. It happened again. My flash drive was gone. Where had I lost it this time? I reported it missing to the program, and through a hunt that lasted a few days, including a computer being moved to a different room, I eventually found and recovered it. That might very well be the most excited I have ever been. No more of my money was spent on flash drives that year.

All in all, I was able to help any interested person in the school. I even had a teacher interested. But could I really go ahead? For all intents and purposes, the program magically located the flash drive, but to work, it actually harnessed the full power we had built up in the last couple years, and it would be a problem for us if we were found out. In the end, nothing big came out of the idea. But it wasn’t pointless; all the learning I did to hurdle over restrictions and make my idea a reality has truly given me an edge in continuing my life as a professional software developer. I figured out how to learn by myself and approach problems from different angles until something worked.

Our other efforts were not in vain. We handed the school board a large report documenting the vulnerabilities we found and what we did. They were not amused to say the least, especially considering there was more than I let on in here, but everything worked out. The CEO of that monitoring software was impressed by us breaking it, and he threw us a pizza party that we combined with a showing of V for Vendetta. All in all, it was a happy ending. But happiest of all was me. More than anything else, I can feel truly proud of my recovered flash drive.

