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When disaster strikes – you need the right tool

Disaster Recovery quick and easy with O&O BlueCon

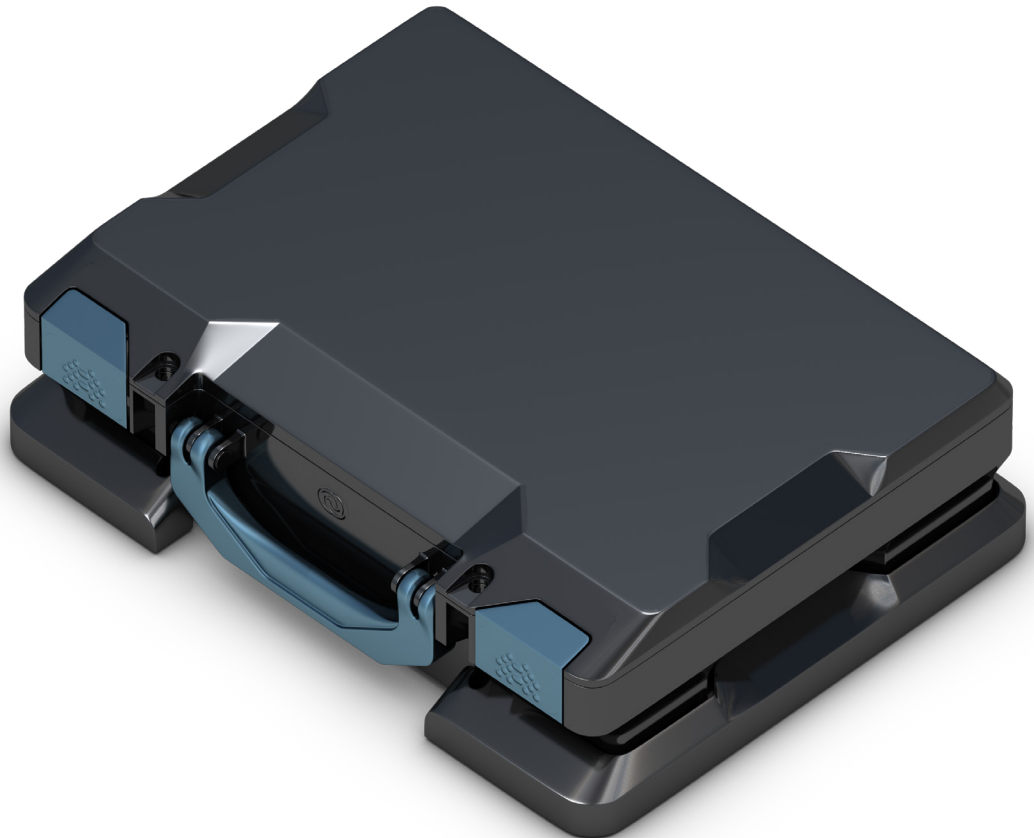




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Executive Summary

Neither hardware nor software providers like to hear it: disaster involving a computer being fully down, crashing, or no longer accessible still happens – and, unfortunately, not too rarely. This whitepaper will explain why such situations not only put limitations on business operations but also contribute to higher costs. It will show how O&O BlueCon can help those responsible for IT services resolve any such problems quickly, securely, and dependably.

1. The Situation: PCs and servers are fine today, but...

The time when Windows workstations and servers were constantly crashing and blue screens made life a nightmare for users and admins is happily long past. Private users as well as workers in IT departments have now gotten used to systems “just working”. Current Windows operating systems are able to work for years at a time and more often than not, are able to overcome problems caused by incorrect usage or badly developed software without the computer ever becoming inaccessible.

All the more greater then are the problems often arising when a system crashes completely and refuses access to the user – whether on account of a blue screen making access impossible, passwords no longer functioning (or lost completely), or a driver permanently damaging the system configuration. IT professionals know only too well how many possible reasons there are for a system to crash – in spite of having the latest hard and software.

Aside from that, IT staff also knows how much work is in store for them: as a rule, someone from the Support team has to travel to the “damaged” system in order to bring it back to life, on location – if that’s even possible. This is why many IT Service Providers believe it’s not really worth the effort to try and salvage such computers because doing so will involve too much time, and success is never guaranteed. Most frequently, they respond to a complete crash of the operating system by making a new installation or even replacing the computer.

If there’s no backup available for this computer, it’ll be necessary to rescue, when possible, the operating system installation alone. At the very least, the IT service providers should be able to transfer the relevant system data onto an external disk. But even when a backup is available, restoring it, especially on server systems, will require some degree of caution on the part of the administrators. Unimaginable would be a scenario in which an admin in a large company would restore a previous day’s backup of the Microsoft Exchange database: the resulting “collective amnesia” involving messages, appointments, and lists that were compiled chronologically could compare to an economic fiasco.

So there are more than enough reasons for repairing a downed Windows computer, whether it’s a PC, workstation, or server. The most sensible and simplest reason of all: it saves money! And the same goes for time.

Disaster recovery when a pc or server no longer starts.



2. The Mistake: Just get a new system...

IT departments or, even more so, the individual responsible for IT operations in small and medium-sized businesses have often very little time and very little budget available to combat such disastrous situations and their after effects.

Added to this is the sad fact that backups for workstations in corporate settings are still much less available than they should be. Many companies lull themselves with the hope that if trouble ever does come, they'll be able to quickly setup a new system or replace the damaged one.

Sad thing is, procurement of a replacement involves considerable expense for the company or the user. That leaves the seemingly more economical option of a reinstalling the operating system together with restoration of all the previously installed programs. Added to this, naturally, is setting up the user data and profile information that was hopefully saved in the backup. It is, of course, a good thing that IT specialists are able to restore many things from a backup. After such a restoration, the user can find nearly all the settings and customized-configurations on the new machine but, again, not (always) all of them. Something always gets lost, even if it's just the last couple of bookmarks or documents that didn't wind up included in the backup.

Along with this frustration for the user, there's the problem of expenses: both options, the procurement (and setup) as well as the new installation generate costs. Even when it looks as though a new installation might be made on a cost-neutral basis – the operating system, programs, and backups are already available so there's no need to buy anything – there are still considerable expenses that arise: IT staff will normally need hours to put everything back together. If worse comes to worst, they might even need days to get things back to "normal". Yes, ideally the user could continue working on a different computer and make good use of the time while the technician's making the restoration. But this employee's time alone over the several hours "downtime" will still generate costs indirectly. Costs that a small or medium business can't always afford and shouldn't have to afford: **A system that's not being used over a long period of time is bad for business!**

There has to be another way of doing things, one that allows IT specialists to bring crashed systems "back to life again" quickly and reliably. This solution should also allow specialists to backup data that was maybe not included in the original backup, just as easily and reliably, directly from this machine – even if the operating system on the machine can no longer start or access to it (on account of a missing password, for example) is impossible.

A blue screen usually means a lot of work.



3. The Reality: Technical aspects and options

Every IT specialist, administrator, and “Power-User” swears by the special tools that he keeps close at hand and ready to help him from day to day. This is especially important when the time comes for solving problems. As a result, there’s no shortage of free and Shareware solutions that are supposed to help restore a crashed system or recover the data on it. We’re now going to take a look at what’s available, talk about what “do it yourself” solutions can accomplish, and then consider O&O BlueCon and how it can be used by professionals.

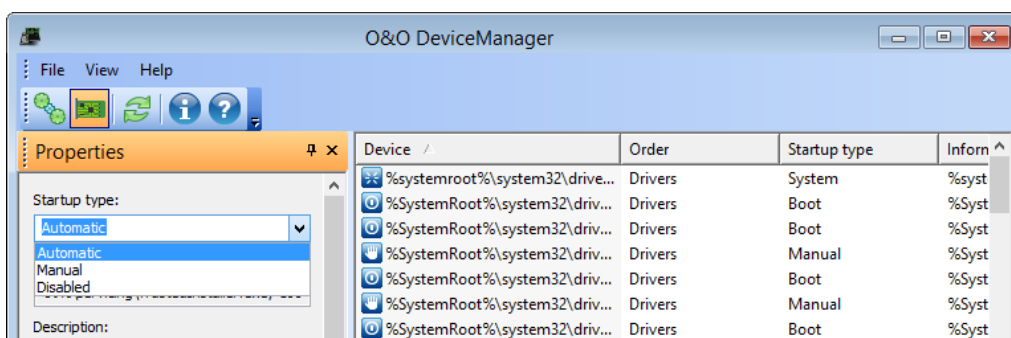
3.1 Can free and Shareware solutions really help?

There is a large number of extremely well-made tools available that an IT professional can use whenever there’s an emergency. There may be fewer cover mounts of CDs/DVDs being offered by computer magazines but IT technicians and semi-pros can occasionally still obtain something worthwhile from these publications, especially when the publishers make the effort to combine such tools to their mutual benefit.

All the same, it must be emphasized: Good labor and performance demand the right tools. Those low-priced screwdrivers found on tables in front of the cash register might be OK for fixing things around the house, but not for the problems facing businesses: professionals need tools made for professionals.

What should an administrator’s **virtual toolbox** contain? Along with a bootable medium and a program for restoring any deleted files, a virtual toolbox should normally also contain a tool for adjusting partitions and/or one for copying files. In most cases, the bootable media will use one of the many Linux distribution whose flexibility and licensing regulations are well-suited for this kind of application, but these also require some experience when working with this operating system. Such expertise is especially required when this bootable medium is needed to rescue or repair a Windows system. While a wide range of various tools is available for partitioning or restoring files, the choice narrows down considerably once more specialized servicing is required. Any work on the settings for hardware drivers or correcting how services are being run will demand a more professional program such as the O&O DeviceManager.

Start directly from bootable medium.



Provides the best possible overview of the installed hardware.



Whoever looks for **solutions from the internet** will certainly find useful material in many cases. On the other hand, using such materials can also result in the total loss of the damaged computer or server. In view of their status as Open Source programs supplied as Freeware, support for these solutions is understandably quite meagre. The reason for this should be no mystery: once a developer starts giving a tool away, there's usually very little interest in taking time to answer questions. The same applies to testing and updates. Sporadic testing of new Windows versions and hardware components as well as irregular updating practices are symptomatic of the Open Source Community programs.

3.2 What consultants und freelancers need

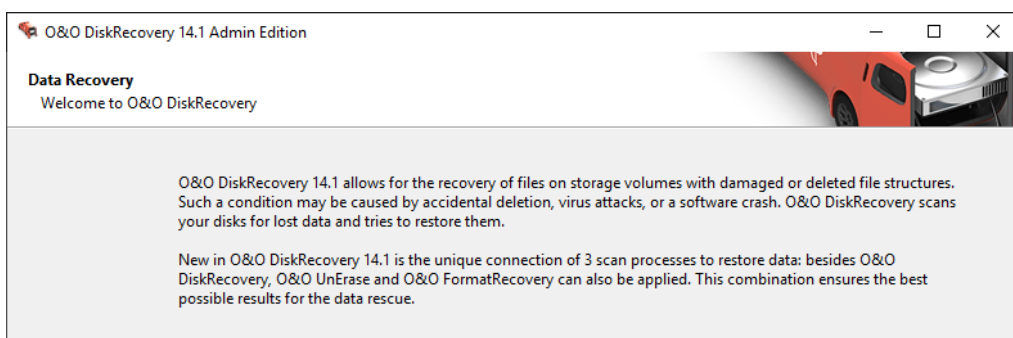
Many companies – **and this applies especially to small and medium businesses** – depend on external consultants and/or IT freelancers for their Windows systems. If a server system or important workstation is down, this is usually the time for calling an IT consultant. A company's own personnel is generally not capable of reviving a downed system – one phone call or an email, and the external professional starts getting to work.

To put it bluntly, very often a new client only contacts an IT professional after the child has fallen into the well: lost data, a malfunctioning Windows, components that are no longer responding, or a never ending restart chain. From the client's point of view, everything should now be done quickly to master the situation. This is not the moment for having a consultation but rather, the time for getting out some sophisticated tools.

External consultants and a company's own system administrators do agree on one thing: all relevant computer systems need to be backed up on a regular basis, and the backup concept that's been devised must be adhered to, come what may. This is usually easier said than done. While the full-time data processing employee is able to do this, the external consultant has to live with the fact that he'll generally be contacted only after it's already too late. As a result, many of these professionals have no functioning backup at their disposal, either because one is simply not available or those that are, are much too old to be of any use.

This is why, in such scenarios, the subject of data recovery – independently of any backup – is of such great importance. A well-developed recovery software can identify hundreds of file types and helps the professional recover them from hard disks, partitions, memory cards or USB sticks. Doing this, consultants are able to make a large part of such lost data readable, even on defective disks.

Starts all programs directly from a bootable medium, without any installation.



O&O DiskRecovery can recognize over 365 file types.



4. The solution: O&O BlueCon – our “Swiss Army Knife” to the rescue

Disaster Recovery that does the job – that’s the motto at O&O. For many IT departments, a system crash that results in a blue screen is a nightmare. If IT personnel have a tool like O&O BlueCon 17 at their disposal, they’d not only be able to take such situations in their stride but would also increase their chances of resolving problems faster and recovering data.

The technology behind this software is based on Microsoft Windows PE, the installation platform on which all current Windows systems are founded. As the product is run entirely via a bootable medium such as a CD/DVD or USB stick, there’s no need for installing any software on the damaged system. There’s also no need – and this is often the case in many disaster scenarios - for a functioning Windows system.



The Windows based user interface makes it so easy to use.

The admin uses the familiar Windows environment so there’s nothing new about the interface that needs to be learned. Fears about working with Linux, the basis of most other tools, completely disappear. The only thing that matters is to rescue the system and/or the data on it. Admins no longer have to worry about whether or not the tools they’re using might further damage or even destroy an already crippled system.

4.1 No access to the system: Here’s how O&O BlueCon can help

The solution is started directly from a bootable medium and provides the user with immediate access to all the tools needed for repairing the system, as well as for finding and fixing errors. It also provides an option for restoring data and resetting passwords. What follows are some scenarios in which O&O BlueCon can really help.

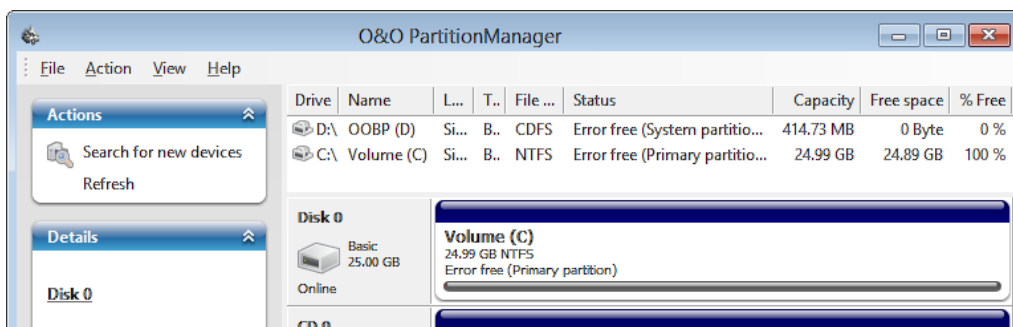
When the local Windows installation can no longer boot, the program acts as its own operating system that the admin starts over a USB stick, PXE network, or over a bootable CD/DVD. Access to the file system on the damaged computer can be made without any problem. The IT professional can backup important files before any repairs are undertaken. As a result of having the identical foundation, it makes no difference whether the defective computer is a desktop PC or a full-blown Windows Server.

Access a computer without an administrator password.



One great source of recurring problems are defective **Microsoft updates** that send the system into a kind of revolving door, making normal operation impossible. In cases like this, it's extremely useful to access the system with a tool that can stop this flood of updates manually. Such access also makes sense when the system's internal security has been compromised by malware or a virus that's deleted files for which no backup is available.

The transfer of files onto another medium is often the last chance for rescuing a heavily damaged computer system. The IT technician can easily use this "Swiss Army Knife" to connect additional disks, initialized as base or dynamic disks. All dialogs and procedures in the **O&O PartitionManager** are already familiar to the Support Manager because they're the same ones used in Windows: No need to learn anything new!



Reliable management of your hard disk.

4.2 When a backup isn't enough...

..., you need a powerful and solid tool. This whitepaper has already emphasized the importance of having a methodical backup strategy. There are, unfortunately, some occasions when using a backup doesn't help. It's possible the data status has been changed so much that a backup is no longer feasible or the recovery mechanisms of the backup software is no longer able to work dependably.

Tricky repairs like this make using O&O BlueCon very practical. This applies even more in cases where the consultant or freelancer has little background information about the defective system. This isn't because they're lacking the right know-how but on account of the fact they were called in too late. Using the **O&O DiskImage** feature, the professional always has the option of creating a backup of the damaged system without having to start it. In cases like these, starting from a bootable device means the technician can be sure a new backup will not cause any changes to the system itself. The one big advantage for the expert: he'll be able to consider different options until he finds the one that's right for fixing the problem.

The backups made with O&O DiskImage are not only good for repairing the system under laboratory conditions, they can also serve as the foundation for a complete restoration of the system onto an entirely different hardware. O&O DiskImage provides this feature under the name **"Machine Independent Restoration (M.I.R.)"** and it enables system restoration of server and workstation platforms on hardware that's different from the one that was used on the original system. Thanks to its support of Windows drivers, the software is also able to work with very complex configurations such as RAID storage systems.



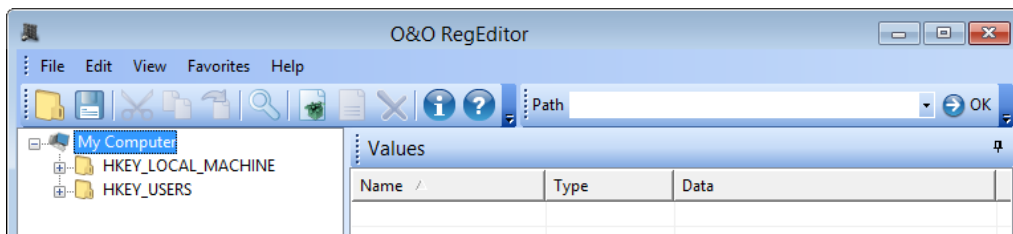
Starting a computer with O&O BlueCon 17 doesn't mean the admin has to give up the multiple options he has at his disposal by using batch jobs. Thanks to the integrated "xcopy" program, the software allows users to copy selected data from the **Command Line** onto an NTFS drive. As a result, there's no need for the IT technician to run all commands over the interface by mouse click. This is how automation can be done using prompts within the O&O environment.

4.3 Problems with drivers, the Registry, passwords, and encryption

Analyzing errors is and remains the most important basis for the IT professional when making a decision. Where does the admin look when something's wrong? Naturally, in the Windows **Event Viewer** – which is, however, not visible on the server or PC that's down. An automatic transmission of events to a central collecting system is something many smaller companies can't or don't wish to have. Admins can use O&O BlueCon to access the system via the EventViewer, even if this is encrypted with **BitLocker**. This is O&O BlueCon's one big advantage over competing solutions. Many free as well as commercial solutions cannot provide access to a disk when it's encrypted by Bitlocker. Accessing encrypted data does, of course, require entering the Bitlocker password.

For problems with the **Windows Registry**, the technician can repair all errors directly from the console. Low-level programs such as antivirus solutions or copy protection mechanisms can cause never-ending system starts if they're not entirely up to date. The professional can find the last functioning configuration under HKLM\SYSTEM in the ControlSet(n) folder. It's then possible to view the value and adjust it accordingly.

Resetting passwords.



Standard PCs normally use simple **Drivers**. O&O BlueCon is able to load additional driver packages from various sources before performing the actual task. This helps avoid a situation where, for example, an admin trying to access a rare RAID adapter would stand before the proverbial closed door: all he needs to do is select the path of the solution in the Driver tab of the System Settings window. The software takes care of all the rest. Network access from the interface with its own IP/DHCP control are a matter of course as is the integrated browser.

Secure deletion of data volumes.

When the time comes for decommissioning, discarding, or giving away a machine, the IT department should make sure that this device no longer contains any usable information. O&O BlueCon provides the highest-level deletion method devised by Peter Gutmann which involves 35 defined overwrites in random order. Once this process is completed, all of O&O's automated data recovery methods are powerless – "0 Files and 0 Folders found for recovery".



4.4 Booting across the network (PXE Boot) and working with Hyper-V

One problem that all IT technicians face time and again is their geographical distance from the machine they're supposed to service. Many admins will confirm that they spend a large part of their day just getting to the user's system in order to make the necessary repairs on site. Once there, they should have their "tool kit" available so that they can then use an O&O BlueCon version to start the system from a DVD or USB stick and get to work. But what happens if the medium needed is just not there, the computer has no DVD drive, or the USB's interface is on strike?

Most current PC systems and servers are able to be started across a network. This is done using PXE technology (Pre Boot Environment) which can help the system be started without a hard disk or another local medium. In order to do this, a corresponding **PXE Boot Medium** has to be found on a server in the network.

Administrators can create such a PXE Boot Medium directly from O&O BlueCon's boot assistant (BuildPE). In this way, the IT team will be able to save this medium on a network server. The medium can then be used as needed for individual computers. This is an ideal way to proceed when, for example, a group of computers in a company needs to be repaired (and made able to start again) without having to insert a medium physically into each machine. If there's a PXE image located on a server in the network, the admin can quickly use it to start O&O BlueCon 17. Once started, the IT technician has the "virtual toolkit" or "digital Swiss Army Knife" available at all times, just in case unexpected problems should arise. Of course, the PXE server involved has to be in the Microsoft domain or installed as needed. The software required for doing this is available from Microsoft (as part of the Windows Deployment Services – WDS) as well as in various free versions.

Virtualization has become a standard method in current IT. A large number of Windows servers can now be run virtually. As a result, many companies have come to believe that virtual systems are "safe" and that if there's ever any trouble, they can always fall back on a previously created snapshot. But even in this apparently more stable and safer world of virtualization, total system crashes can occur. If the crash affects only the virtual machine, the admin can use snapshots to get out of trouble. Available backups that were created successfully can also help – keeping in mind, however, the aforementioned problems associated with them. Repairs on a VM using a powerful tool such as O&O BlueCon can be carried out pretty much in the same way they are on physical hardware. The IT technician should, however, always remember that a problem appearing on a VM might be caused by an error in the host system.

When correcting a blue screen that appears on a Windows server primarily used as a Hyper V host for virtualization, it's even more important to follow a very precise series of steps. Why is that? Here's where the storage adapter, local RAID systems, highly-specific system drivers, and a narrow timeframe all meet. It's in situations like this that a recovery program like O&O BlueCon, optimized for Windows systems, can really score points.

Create a PXE Boot medium from BuildPE.



5. Conclusion: No downtime and minimal costs

It's not always easy for administrators and those responsible for IT departments to convince management that a certain software tool needs to be purchased. All too often, the ones in charge take the attitude, "It's just the IT guys wanting to have a new toy to play with!".

The information we presented in this White Paper should have clearly illustrated how important it is for IT professionals to have the right tools for doing their jobs effectively. By "right" we don't just mean solutions such as O&O BlueCon putting all the right tools in one package on one disk into an administrator's hands. It means, above all, having the right tools at the right place and at the right time to also help reduce costs considerably.

Costs arise when systems crash, data can no longer be accessed, and IT specialists have to rush to a location in order to get a system quickly up and running again.

Costs arise when users are unable to be fully productive during those times when a system needs to be reconfigured or repaired – even if they're working temporarily on another system.

Larger costs then arise when the "wrong solution" can't access a system and it has to be reconfigured completely or even purchased anew, together with new hardware.

For **IT specialists** it's clear that this "All-in-One" solution will not only let them get a damaged system quickly up and running again, but that they can do so dependably and without fear of experiencing any further trouble. The software's great flexibility and its ability to be used directly from a CD/DVD/USB stick as well as over a network are additional decisive points in O&O BlueCon 17's favor.

Access to various tools that repair the system.

About the authors

IT Manager Thomas Bär and freelance journalist Frank-Michael Schlede started writing together at the beginning of 2010, after more than ten years of being jointly involved in a number of successful projects. Thomas Bär has been active in IT since the end of the 1990's and has been a freelance IT trade journalist since the early 2000's. Frank-Michael Schlede has been an IT freelance journalist since 2010. His main focus is on Windows systems and programs, networks, virtualization, and security. He was previously active as an Editor/Chief Editor for a number of publishing houses.



O&O BlueCon 17

When disaster strikes – you need the right tool

Disaster Recovery that just works

A system crash! A nightmare for any Administrator of course, but for others just a challenge. Whereas one tries a lot of fancy tricks at breakneck speed, the other simply starts O&O BlueCon 17 directly from a boot medium and immediately has access to various tools that repair systems, find and solve errors, recover data, reset passwords and much more. Disaster recovery doesn't get any easier.

Application scenarios for O&O BlueCon:

- ▶ Defective driver installation after changing hardware causes blue screen
- ▶ Remove/uninstall updates that were installed by Windows
- ▶ Windows fails to start for no explainable reason
- ▶ Defective Windows updates
- ▶ User has forgotten his Windows password
- ▶ Files without backups are accidentally deleted
- ▶ Malicious code has damaged the system
- ▶ Data needs to be permanently deleted from the hard disk
- ▶ Resolve problems with drivers and services
- ▶ Search for errors and check drives
- ▶ Resolve Windows errors and restore (XP) systems
- ▶ Manage users and reset forgotten passwords
- ▶ Secure data deletion before computer disposal or transfer
- ▶ Recover files that were accidentally deleted
- ▶ Search for, copy, and reposition data
- ▶ Reload driver even before program start
- ▶ Download additional tools: Integrated web browser
- ▶ Windows 8 – Windows Server 2019



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