

## System State Backups and Best Practices

<https://campus.barracuda.com/doc/93198960/>

### Overview

A system state backup is a backup of operating system configuration files and is recommended as part of a server backup plan. We support system state backups for Server 2008-, 2008R2-, 2012-, and 2012R2-based systems.

It is important to note that system state backups on the Windows Server 2008 family and newer do **NOT** adequately function as disaster recovery. They are designed for snapshot reversion only. Due to limitations in the Windows Backup feature, you may only recover to the exact same installation of Windows on the exact same hardware. If you try to restore to a different installation of Windows, even if it has identical hardware, the restore fails.

#### System state backups include:

- System Registry
- COM + Database
- Certificate Services\*
- Active Directory\*
- SysVol
- IIS Metabase\*

#### Notes

- Items in the list with an asterisk are only backed up if you have the specified services installed.
- System state backups are only meant for recovery to the same server or to another server with the identical operating system and hardware. Microsoft does not support restoring system state to different hardware as referenced in this KB article: <http://support.microsoft.com/kb/249694>.

### Solution

#### How does the Intronis system state backup work?

1. The Intronis system state plugin leverages the built-in Windows backup tools to create a system

state backup. Windows 2003 and XP use the NTBackup utility, which comes installed with the operating system, to create a system state backup.

2. Windows 2008 however requires the Windows Backup utility to be installed, which does not come natively with the operating system. You must add the Windows Server Backup utility through the Programs and Features section of the Control Panel. If you are on a Server 2008 installation and you do not see System State as an option in our software, this means you do not have Windows Backup installed.
3. With these Windows utilities installed, all you need to do is to set the schedule in our software and the number of weeks of backup you would like to keep. Our software will call these utilities to create the backup file on the system before we back it up to our servers. In accordance with Microsoft's best practices system state is scheduled by default to run once weekly. You can run the system state backup every day if you desire to though.
4. NTBackup generates a .bak file which our software takes and backs up to the remote servers. To restore the information you would tell our software to restore to your computer, producing the .bak file, which you could then point NTBackup to in order to restore.
5. Windows Server Backup creates a number of small files that we package and bundle into a .tar file. Once you restore this file using our software, you can point archive software such as 7 zip or Winrar to this file to unzip it, and then you can point Windows Backup to the directory in order to restore the files. Remember that you can only restore to the same installation of Windows.
6. We attempt to use our Intelliblox technology to take block-level differentials from backup to backup, however frequently there are too many changes between the files to do so. Please allow more space in your backup plan based on the number of system state backups you are planning to keep.

#### **What are the key differences between system state backups for Server 2003 and Server 2008?**

1. System state backups for Server 2003 are performed through the NTBackup utility that comes pre-installed with Windows, whereas system state backups for Server 2008 are done with the Windows Server Backup program which does not come pre-packaged with Windows.
2. In Server 2008, Microsoft requires that you perform the system state backup on a non-critical volume. A critical volume is a drive that contains files and programs that the operating system uses. The Windows Backup utility creates the backup file on this non-critical drive and then backs it up using our software.
3. Microsoft uses its own criteria to determine critical drives, so Intronis does not have the ability to create the backup file on a drive that is marked as critical by the operating system. If you only have one hard drive our recommended practice is to use a portable hard drive to create the backup file. This portable drive can be used as temp space for other backup sets or as your local vault.
4. If you do not have another drive or the ability to use a portable one Microsoft does have a workaround in this KB article: <http://support.microsoft.com/kb/944530>. The article details making modifications to the registry in order to use a critical drive to create the backup file.
5. The system state backup size is much smaller on Server 2003, ranging from a few hundred MB in size to roughly 1 GB, depending on the computer. System state backups for Server 2008 can easily be as large as 10-15 GB. These sizes are dependent on the machine backing up and are determined by the Windows backup utility.

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## **Solution Verification**

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- Run a System State backup and ensure it completes without error or warnings.

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