

The Recovery Console

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1. Common

With the introduction of Microsoft Windows 2000 Server and Microsoft Windows XP the possibility to implement the recovery console is added. The console can be used when an operating system does not start correctly or does not start at all. Although the recovery console can be started using the installation CD-ROM, it is beneficial to add this feature in a corporate recovery design.

As a best practice use the recovery console as last resort only. First steps in troubleshooting are the use of safe mode and traditional features like the last known good.

The use of the recovery console is restricted to the Administrator.

Within the console tasks like disabling services, format drives, access data (even data on a NTFS volume) and several other tasks can be performed. The console does not use the standard command prompt, but has its own command interpreter.

By default, only the root and system folders can be accessed using the console, this will provide access to critical boot files like NTDETECT, NTLDR, BOOT.INI and to the complete system folder structure which contain the driver and services components required for an operating system to run. So access to other data areas, like Program Files and User Profile folder are prohibited.

2. Invoke the Recovery Console

The recovery console can be launched with or without installing it on the target system.

2.1. Start from Media

The recovery console can be launched from the original installation media, which normally is a bootable CD-ROM.

The following steps explain how to launch the recovery console using the original media:

1. Insert the original installation media, CD-ROM into the systems CD-ROM drive;
2. Restart the system (or turn it on when it's broken or down) and perform a boot from media. In some cases the BIOS need to be adjusted or a key must be pressed to boot from CD-ROM.
3. When the "Welcome to Setup" screen appears, press R to start the Recovery Console.
4. On a dual or multi-boot system select the installation which needs to be examined.
5. When required type the Administrator password, or press enter when it is blank.
6. The recovery console command prompt appears.
7. Press exit when done, this will restart the system.

On dual or multi-boot systems it is possible to change between the different operating systems. When the logon command is used a list the available installations is shown.

When changing to a different installation the Administrator password is required and has to be entered prior to the change.

Recovery Console requires the log on by using the password for the built-in account that was originally named Administrator. The text on the Recovery Console logon screen does not change to reflect the new name of the built-in Administrator account. The Recovery Console will accept the password for the renamed user account.

When a Windows Server-based computer is promoted to a domain controller, the password for the Directory Service Restore Mode Administrator password must be entered. This password is also used by Recovery Console and is separate from the Administrator password that is stored in Active Directory after a completed promotion.

2.2. Start using RIS

When a system is placed in an environment which contains Remote Install Server, the Remote Console can also be launched using Pre-boot eXecutable Environment, PXE.

To add this option to the RIS server, a template (.sif) file has to be created that contains the information described next.

Because RIS enumerates the templates folder for SIF files to determine the menu options, placing it in the templates folder of the RIS image will allow it to be displayed. Because using this template requires that the computer be rejoined to the domain, this option can be hidden from other users by restricting file system Access Control Lists (ACLs) to administrators. Note that the supported method for running the Recovery Console is to use the installation media.

Create the following file template:

```
[data]
floppyless = "1"
msdosinitiated = "1"
OriSrc = "\\%SERVERNAME%\RemInst\%INSTALLPATH%"
OriTyp = "4"
LocalSourceOnCD = 1

[SetupData]
OsLoadOptions = "/noguiboot /fastdetect"
SetupSourceDevice
="\\Device\LanmanRedirector\%SERVERNAME%\RemInst\%INSTALLPATH%"

[UserData]
FullName = "%USERFULLNAME%"
OrgName = "%ORGNAME%"
ComputerName = %MACHINENAME%

[RemoteInstall]
Repartition = no
[OSChooser]
Description ="Microsoft Windows - Recovery Console"
Help ="Allows user to perform repair operations, without local media."
LaunchFile = "%INSTALLPATH%\%MACHINETYPE%\templates\startrom.com"
ImageType =Flat
Version="5.0"
```

Note that the "Repartition = No" line must exist or RIS will attempt to reformat the hard disk. The [UserData] section must also exist or Setup will not succeed.

When the 'Welcome To Setup screen' appears, either press F10 or R to repair, and then press C for the Recovery Console. Once repairs are complete rejoin the system to the domain.

2.3. Installation

This paragraph describes both the attended and un-attended installation of the recovery console. Recovery Console requires approximately 7 megabytes (MB) of space in the system partition on the hard disk.

Installing Recovery Console on the local hard disk causes the attributes of the Boot.ini file to be changed. By default, the System and Hidden attributes are set. Installing Recovery Console adds the Read-Only and Archive attributes. If mentioned attributes were removed from the Boot.ini file, the System and Hidden attributes are also set again.

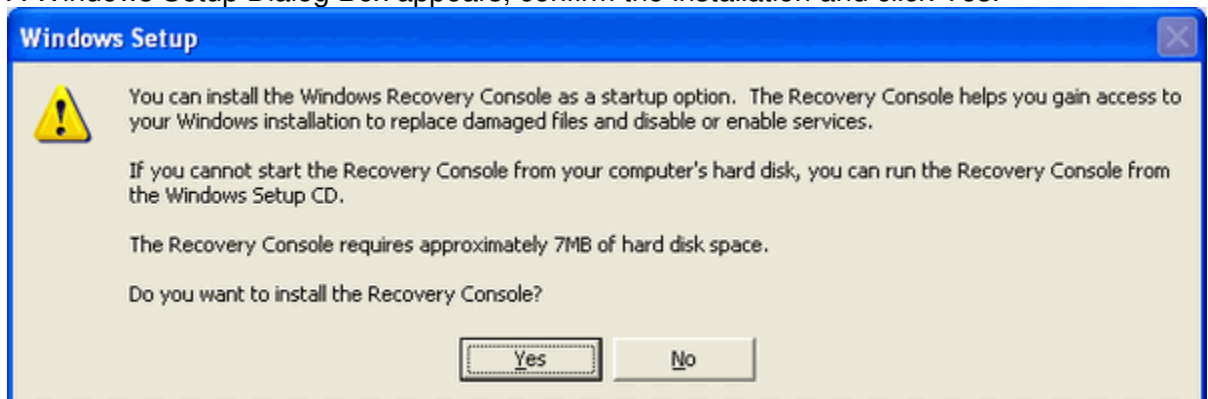
2.3.1. Attended

Most of the time, it is undesirable to boot from a CD-ROM in case the recovery console is needed. Sometimes it is not even possible to reboot from CD-ROM because of the fact that the drive is not directly accessible or even not available.

To install the recovery console locally on a server or workstation, administrator privileges are required.

Using the following steps fulfills a manual installation of the recovery console:

1. Insert the Microsoft Windows CD-ROM into the CD-ROM drive;
2. Click Start->Run (or press Flag-R);
3. In the Run dialog press "<cd-rom drive>:\i386\winnt32 /cmdcons" and press enter;
4. A Windows Setup Dialog Box appears, confirm the installation and click Yes.



5. When the installation is finished, restart the system.

As alternative, the installation can also be fulfilled from a network share. In that case place a copy of the media onto a network server and start the installation using the UNC path to the WINNT32.EXE program. (I.e. \\server01\share\$\i386\winnt32 /cmdcons).

Installing the recovery console locally will add the required software on the system and will modify the boot.ini.

When the recovery console starts the F6 key can be used to install third-party SCSI or RAID drivers. This process is the same as when installing the operating system manually.

2.3.2. Un-attended

To install the Recovery Console during the unattended installation of Microsoft Windows, the following command must be added under the [GuiRunOnce] section of the unattend.txt file.

```
Command1="path\winnt32 /cmdcons /unattend"
```

2.4. Un-installation

The following steps will un-install the recovery console.

1. When required restart the system to the operating system.
2. Click Start, click My Computer, and then double-click the hard disk where the Recovery Console is installed.
3. On the Tools menu, click Folder Options, and then click the View tab.
4. Click Show hidden files and folders, click to clear the Hide protected operating system files check box, and then click OK.
5. At the root folder, delete the Cmdcons folder and the Cmlldr file.
6. At the root folder, right-click the Boot.ini file and then click Properties.

Modifying the Boot.ini file incorrectly may prevent your computer from restarting. Make sure to delete only the entry for the Recovery Console. Also, change the attribute for the Boot.ini file back to a read-only state after you finish this procedure. Open the Boot.ini file in Microsoft Windows Notepad, and remove the entry for the Recovery Console. It looks similar to this:

```
C:\cmdcons\bootsect.dat="Microsoft Windows Recovery Console" /cmdcons
```

7. Click to clear the Read-only check box, and then click OK.
8. Save the file and close it.

2.5. Windows NT 4.0

The Recovery Console for Windows 2000 can be used to recover a Microsoft Windows NT 4.0-based computer that is unable to boot to an operating system. For example, the Recovery Console can be useful in situations where a driver or service prevents the computer from restarting or if a file or registry hive is corrupt. However, before you attempt to use the Recovery Console, use the "last known good" configuration.

To install the Recovery Console on a Windows NT 4.0-based computer, either restart the computer by using the original Windows 2000 CD-ROM, if the computer supports restarting from a CD-ROM, or restart by using the four Windows 2000 Setup disks.

When the "Welcome to Setup" screen appears, press F10, or press the "R" key on the keyboard (to repair an existing Windows 2000 installation), and then at the next screen, press the "C" key on the keyboard to go to the Recovery Console. The Recovery Console should start and request you to log on to the computer by using the administrator password.

The following issues can occur when you use the Recovery Console on a Windows NT 4.0-based computer:

1. Windows NT 4.0 Service Pack 4 (SP4) or later is required to log on to the Recovery Console.
2. If the operating system is on a (software) mirrored partition, the mirror must be broken before it can be accessed. The software mirror can be broken by using the Disksave.exe utility located in the Windows NT 4.0 Resource Kit.
3. There may be some services that cannot be stopped and started by using the listsvc command.
4. When using the chkdsk command, you may be prompted for the location of the Autochk.exe file. If so, point to the %SystemRoot%\System32 folder of the Windows NT 4.0-based computer that you are attempting to repair and then the Chkdsk utility should run.
5. If the computer restarts from the four Windows 2000 Setup disks, and the option to install the operating system rather than boot to the Recovery Console is selected, Setup can prompt you for the Windows 2000 installation CD-ROM. In this situation, restart the computer (no changes are made to the current drive).
6. The format command does not work when booting to the Recovery Console from the Setup disks and you are prompted for the location of the Autofmt.exe file.

Limitations with regards to the available commands will be explained later.

2.6. 64-bits

Since the installation of the Recovery Console is fulfilled using the WINNT32.EXE command, this feature is not available on the new 64-bits platform. The only possible method is starting the Recovery Console using the original installation medium as explained within the section 'Start from Media' described earlier.

3. Commands

The following table describes the available commands for the Recovery Console

Command	Description
attrib	Changes attributes on one file or subdirectory.
batch	Executes commands that you specify in the text file, Inputfile. Outputfile holds the output of the commands. If you omit the Outputfile parameter, output appears on the screen.

bootcfg	Modifies the Boot.ini file for boot configuration and recovery.
cd (chdir)	Operates only in the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or the local installation sources.
chkdsk	The /p switch runs Chkdsk even if the drive is not flagged as dirty. The /r switch locates bad sectors and recovers readable information. This switch implies /p. Chkdsk requires Autochk. Chkdsk automatically looks for Autochk.exe in the startup folder. If Chkdsk cannot find the file in the startup folder, it looks for the Windows 2000 Setup CD-ROM. If Chkdsk cannot find the installation CD-ROM, Chkdsk prompts the user for the location of Autochk.exe.
cls	Clears the screen.
copy	Copies one file to a target location. By default, the target cannot be removable media, and you cannot use wildcard characters. Copying a compressed file from the original installation CD-ROM automatically decompresses the file.
del (delete)	Deletes one file. Operates within the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or the local installation sources. By default, you cannot use wildcard characters.
dir	Displays a list of all files, including hidden and system files.
disable	Disables a Windows system service or driver. The variable service_or_driver is the name of the service or driver that you want to disable. When you use this command to disable a service, the command displays the service's original startup type before it changes the type to SERVICE_DISABLED. Note the original startup type so that you can use the enable command to restart the service.
diskpart	Manages partitions on hard disk volumes. The /add option creates a new partition. The /delete option deletes an existing partition. The variable device is the device name for a new partition (such as \device\harddisk0). The variable drive is the drive letter for a partition that you are deleting (for example, D). Partition is the partition-based name for a partition that you are deleting, (for example: \device\harddisk0\partition1) and can be used instead of the drive variable. The variable size is the size, in megabytes, of a new partition.
enable	Enables a Windows system service or driver. The variable service_or_driver is the name of the service or driver that you want to enable, and start_type is the

	<p>startup type for an enabled service. The startup type uses one of the following formats:</p> <p style="text-align: center;">SERVICE_BOOT_START SERVICE_SYSTEM_START SERVICE_AUTO_START SERVICE_DEMAND_START</p>
exit	Quits the Recovery Console, and then restarts the computer.
expand	Expands a compressed file. The variable source is the file that you want to expand. By default, you cannot use wildcard characters. The variable destination is the directory for the new file. By default, the destination cannot be removable media and cannot be read-only. You can use the attrib command to remove the read-only attribute from the destination directory. The option /f:filespec is required if the source contains more than one file. This option permits wildcard characters. The /y switch disables the overwrite confirmation prompt. The /d switch specifies that the files will not be expanded and displays a directory of the files in the source.
fixboot	Writes a new startup sector on the system partition.
fixmbr	Repairs the startup partition's master boot code. The variable device is an optional name that specifies the device that requires a new Master Boot Record. Omit this variable when the target is the startup device.
format	Formats a disk. The /q switch performs a quick format. The /fs switch specifies the file system.
help	If you do not use the command variable to specify a command, help lists all the commands that the Recovery Console supports.
listsvc	Displays all available services and drivers on the computer. These are extracted from the %SystemRoot%\System32\Config\SYSTEM hive. If the SYSTEM hive become damaged or missing, unpredictable results may occur.
logon	Displays detected installations of Windows and requests the local Administrator password for those installations. Use this command to move to another installation or subdirectory.
map	Displays currently active device mappings. Include the arc option to specify the use of Advanced RISC Computing (ARC) paths (the format for Boot.ini) instead of Windows device paths.
md (mkdir)	Operates only within the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or the local installation sources.
more/type	Displays the specified text file on screen.
rd (rmdir)	Operates only within the system directories of the current Windows installation, removable media, the root

	directory of any hard disk partition, or the local installation sources.
ren (rename)	Operates only within the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or the local installation sources. You cannot specify a new drive or path as the target.
set	Displays and sets the Recovery Console environment variables.
systemroot	Sets the current directory to %SystemRoot%.

3.1. Commands In-depth

Some of the previously shown commands are more complex and require additional explanation.

3.1.1. BOOTCFG

Syntax: bootcfg <argument>

`bootcfg /default`

The command sets the default operating system option in the Boot menu. The command selects the operating system entry automatically.

`bootcfg /add`

The command scans the computer for Windows NT 4.0, Windows 2000 or Windows XP (if it is dual booting) installations and then displays the results. From this location an installation can be added into the Boot menu.

You may receive a message that is similar to the following message:

```
Scanning all disks for Windows Installations
Please wait, since this may take a while...
```

```
Total Identified Windows Installs: 2
```

```
[1] C:\Windows
[2] D:\Windows
```

```
Select installation to add: (select a number)
```

```
Enter Load Identifier: (Custom description for an operating system loading from the Boot menu)
```

```
Enter Operating System Load Options: (that is: /fastdetect)
```

This process adds a new entry in the Boot menu. When adding an installation, the bootcfg command also makes the installation the default operating system boot entry.

`bootcfg /rebuild`

The command scans the hard disks of the computer for Windows NT 4.0, Windows 2000 or Windows XP installations and then displays the results. You can add the detected Windows installations.

You may receive a message that is similar to the following message:

```
Total Identified Windows Installs: 2
```

```
[1] C:\Windows
```

```
Add installation to boot list? (Yes/No/All):
```

```
Enter Load Identifier: (Custom description for an operating system loading from the Boot menu)
```

```
Enter Operating System Load Options: (that is: /fastdetect)
```

```
[2] D:\Windows
```

```
Add installation to boot list? (Yes/No/All):
```

```
Enter Load Identifier: (Custom description for an operating system loading from the Boot menu)
```

```
Enter Operating System Load Options: (that is: /fastdetect)
```

bootcfg /scan

The command scans the hard disks of the computer for Windows NT 4.0, Windows 2000 or Windows XP installations, and then displays the results.

You may receive a message that is similar to the following message:

```
Scanning all disks for Windows Installations
```

```
Please wait, since this may take a while...
```

```
Total Identified Windows Installs: 2
```

```
[1] C:\Windows
```

```
[2] D:\Windows
```

bootcfg /list

The command reads the Boot.ini file, and then displays the operating system identifier, the operating system load options, and the operating system location (path).

You may receive a message that is similar to the following message:

```
Total entries in boot list: 2
```

```
[1] Microsoft Windows Whistler Professional
```

```
Operating System Load Options: /fastdetect
```

```
Operating System Location: D:\Windows
```

```
[2] Microsoft Windows Whistler Server
```

```
Operating System Load Options: /fastdetect
```

```
Operating System Location: C:\Windows
```

bootcfg /redirect

The command enables redirection in the boot loader with the configuration specified as port and baudrate. This command is used to turn on the Headless Administration feature.

The following example uses this command:

```
bootcfg /redirect com1 115200
```

```
bootcfg /redirect useBiosSettings
```

bootcfg /disabledirect

The command disables redirection in the boot loader with the configuration specified as port and baudrate. This command is used to turn off the Headless Administration feature.

3.1.2. *CHKDSK*

Syntax: `chkdsk drive /p /r`

This command (where `drive` specifies the drive to check) checks the drive, and if needed, repairs or recovers the drive. It also marks bad sectors and recovers readable information.

The `/p` switch instructs CHKDSK to do an exhaustive check of the drive even if the drive is not marked with problems, and then corrects any errors that are found. The `/r` switch locates bad sectors and recovers readable information. Note that if you specify the `/r` switch, the `/p` switch is implied. The `chkdsk` command may be specified without arguments, in which case the current drive is implied with no switches. Optionally, the listed switches are accepted. The `chkdsk` command requires the `Autochk.exe` file. `Chkdsk` automatically locates this file in the `bootup` folder. Typically, this folder is the `Cmdcons` folder if the Command Console was pre-installed. If the folder cannot be found in the `bootup` folder, `Chkdsk` tries to locate the Windows CD-ROM installation media. If the installation media cannot be found, `Chkdsk` prompts you to provide the location of the `Autochk.exe` file.

3.1.3. *DISABLE*

Syntax: `disable servicename`

Use this command (where `servicename` specifies the name of the service or driver to be disabled) to disable a Windows system service or driver.

Use the `listsvc` command to display all eligible services or drivers to disable. The `disable` command prints the old start type of the service before resetting it to `SERVICE_DISABLED`. Keep track of the state of the service in case it is necessary to re-enable the service.

The `start_type` values that the `disable` command displays are:

```
SERVICE_DISABLED
SERVICE_BOOT_START
SERVICE_SYSTEM_START
SERVICE_AUTO_START
SERVICE_DEMAND_START
```

3.1.4. *DISKPART*

Syntax: `diskpart /add /delete device_name drive_name partition_name size`

Use this command to manage the partitions on your hard disk volumes.

`/add`
Creates a new partition.

`/delete`
Deletes an existing partition.

`device_name`
The device name for creating a new partition. The name can be obtained from the output of the MAP command, for example: `\Device\HardDisk0`.

`drive_name`
A drive-letter based name for deleting an existing partition, for example D:

`partition_name`
The partition-based name for deleting an existing partition and can be used in place of the drive name argument, for example: `\Device\HardDisk0\Partition1`

`size`
The size of the new partition in megabytes.

If no arguments are used, a user interface for managing the partitions is displayed.

This command can damage the partition table if the disk has been upgraded to a dynamic disk configuration. Do not modify the structure of dynamic disks unless using the Disk Management tool.

3.1.5. *ENABLE*

Syntax: `enable servicename start_type`

This command can be used to enable a Windows system service or driver, where `servicename` is the name of the service or driver to be enabled.

Use the `listsvc` command to display all eligible services or drivers to enable. The `enable` command prints the old start type of the service before resetting it to the new value. Keep track of the old value, in case it is necessary to restore the start type of the service.

Valid `start_type` are:

```
SERVICE_BOOT_START
SERVICE_SYSTEM_START
SERVICE_AUTO_START
SERVICE_DEMAND_START
```

If no new start type is specified, the `enable` command prints the old start type.

3.1.6. *EXPAND*

Syntax : `expand source [/F:filespec] [destination] [/y]`

expand source [/F:filespec] /D

Use this command, where source specifies the name of the file to be expanded and destination specifies the directory for the new file, to expand a file.

It is not possible to wildcards, also if no destination is specified, the command defaults to the current folder.

/y

Do not prompt before overwriting an existing file.

/f:filespec

If the source contains more than one file, this parameter is required to identify the specific files to be expanded. You may include wildcards.

/d

Do not expand; only display a directory of the files which are contained in the source.

destination

The destination may be any directory within the system directories of the current Windows installation, the root of the drive, the local installation sources, or the Cmdcons folder. The destination cannot be removable media. The destination file cannot be read-only. Use the attrib command to remove the read-only attribute.

Expand prompts if the destination file already exists unless the /y option is used.

3.1.7. *FIXMBR*

Syntax: fixmbr device name

Use this command, where device name is an optional device name that specifies the device that needs a new MBR, to repair the master boot record (MBR) of the system partition. This command is used in scenarios where a virus has damaged the MBR and Windows cannot start.

This command has the potential to damage your partition tables if a virus is present or a hardware problem exists. This command may lead to inaccessible partitions. Microsoft suggests running antivirus software before using this command.

The name can be obtained from the output of the map command. If this is left blank, the boot device's MBR is fixed, for example:

```
fixmbr \device\harddisk2
```

If Fixmbr detects an invalid or non-standard partition table signature, it prompts for permission before rewriting the MBR.

3.1.8. *FORMAT*

Syntax: format drive: /Q /FS:file-system

/Q

performs a quick format of the drive, drive is the drive letter of the partition to format

/FS:file-system

specifies the type of file system to use [FAT, FAT32, or NTFS], to format the specified drive to the specified file system.

If a file system is not specified, the existing file system format is used, when available.

3.2. Windows NT 4.0

The following table shows the command which have known issues executed under Windows NT 4.0 using the Windows 2000 Recovery Console.

Command	Limitation
fixboot	It works, but replaces Ntldr, Ntdetect.com, and Cmdldr with the Windows 2000 versions.
md (mkdir)	It works but not at the root level.
format	It does not work when run from floppy disks and it prompts for the Autofmt.exe file. Do not format NTFS file system partitions by using a Recovery Console, it will change the NTFS format to version 5.0, which the Windows NT version of the Chkdsk.exe utility is unable to repair.
chkdsk	Works, but the path to the System32 folder for the Autochk.exe file needs to be entered, when prompted.

4. Rules

By default the recovery console is locked down. This protects a starting user from making huge mistakes and increases the awareness of the power which the console provides.

Using the set command the lock down rules can be changed. The following table shows the commands, their default value and purpose.

Command	Default	Purpose
AllowAllPaths	False	Prevents access to directories and subdirectories outside the system installation that you selected when you entered the Recovery Console.
AllowRemovableMedia	False	Prevents access to removable media as a target for copied files.
AllowWildCards	False	Prevents wildcard support for commands such as copy and del.
NoCopyPrompt	False	Means that you are prompted by the Recovery Console for confirmation when overwriting an existing file.

When attempting to use the set command to change any of these variables from FALSE to TRUE, the following error message may appear:

The SET command is currently disabled. The SET command is an optional Recovery Console command that can only be enabled by using the Security Configuration and Analysis snap-in.

To enable the possibility to change these values the set command option must be enabled using one of the Microsoft Windows security tools.

One of the following tools can be used:

- Security Configuration and Analysis snap-in in Microsoft Management Console (MMC);
- Domain Controller Security Policy in Administrative Tools;
- Domain Security Policy in Administrative Tools;
- Local Security Policy in Administrative Tools.

When using these tools navigate to the Windows Settings, Local Policies, Security Options heading and locate the following two security policies pertaining to Recovery Console.

Recovery Console: Allow Automatic Administrative Logon.

Recovery Console: Allow floppy copy and access to all drives and all folders.

The first policy enables the possibility to start Recovery Console without prompting for the administrative password stored in the local computer's account database. The second policy enables the use of the set command using the Recovery Console. When enabled it allows the change of any of the four environment variables to TRUE during a Recovery Console session.

Although the policy allows the use of copying files to other media, prior to use this feature the set command must be retyped each time the Recovery Console is started.

When the systems are placed within Active Directory forest the behavior of the recovery console can be changed centrally using the Domain Security Policy in Administrative Tools.

The policy sets the HKEY_LOCAL_MACHINE\Software\Microsoft\Windows NT\CurrentVersion\Setup\RecoveryConsole registry key's DWORD "SetCommand" value to 1.

5. How-to

This paragraph explains how to fulfill some common tasks using the Recovery Console.

5.1. Replace a driver

The first step in recovering or replacing a driver is to start the Recovery Console. If the driver is part of the original Microsoft Windows distribution, the driver can be extracted from the Driver.cab file.

At the command prompt in Recovery Console, type the following line, and then press enter:

```
expand <cd-rom>:\i386\driver.cab /f:<filename> [path]
```

In this command replace filename with the name of the file to expand and path with the folder in which to copy the driver file. Typically, driver (.sys) files are stored in the %SystemRoot%\System32\Drivers folder.

In this command the /f switch is used because of the fact that the Driver.cab cabinet file contains a huge amount of files.

The file can be expanded to the target folder or copied manually. To copy the file manually use the following procedure:

At the command prompt use the copy command and press enter:

```
copy [source_path] source_filename [destination_path] destination_filename
```

In this command, replace source_path with the path for the source replacement file, source_filename with the name of the replacement file, destination_path with the path for the driver file and destination_filename with the name of the driver file which needs to be replaced.

For example, to replace the 4mmdat.sys file with a known good copy from a floppy disk drive:

```
copy a:\4mmdat.sys c:\winnt\system32\drivers\4mmdat.sys
```

The copy command in Recovery Console does not support wildcard characters; therefore, only one file at a time can be copied. When multiple files must be replaced, multiple copy commands are required.

5.2. Delete the pagefile

When booted in the Recovery Console the pagefile.sys is not present. A directory listing does not show the pagefile.sys on the root of the boot folder (the drive containing the %SystemRoot% folder). This behavior occurs because the pagefile.sys file is not accessible when you are in Recovery Console.

To work around this behavior, copy another file to the pagefile.sys file. Afterwards the pagefile.sys file is displayed and can then be deleted.

The procedure will be the following:

1. Go to the root of the boot drive (most commonly the C:\Winnt folder);
2. Type the following command to overwrite the existing pagefile.sys file with Boot.ini:

```
copy c:\boot.ini pagefile.sys
```

After copying the boot.ini over to pagefile.sys, the pagefile.sys appears in the directory listing.

3. Delete the pagefile the following command:

```
del pagefile.sys
```

5.3. Change Directory Service Restore Mode Administrator password

As stated earlier, a Windows Server-based computer is promoted to a domain controller the Directory Service Restore Mode Administrator password must be entered. This password is also used by Recovery Console and is separate from the Administrator password that is stored in Active Directory after a completed promotion.

When this password is forgotten or unknown, it can be reset to a different value. The server requires minimally to be Microsoft Windows 2000 with Service Pack 2.

The Setpwd.exe utility can be used to change the SAM-based Administrator password.

To perform this action first log on to the computer as the administrator or a user who is a member of the Administrators group. Next open a command prompt and change to the %SystemRoot%\System32 folder. Next start the setpwd command and enter the new password.

To change the SAM-based Administrator password on a remote domain controller type the following command at a command prompt, and then press enter:

```
setpwd /s:servername
```

servername is the name of the remote domain controller.

When prompted to enter the password for the Directory Service Restore Mode Administrator account enter the new password.

No original knowledge of the used password is required, so when changed incorrectly use the setpwd again.

As alternative, or on Windows 2000 systems without SP2, the following procedure can be used as well.

Restart the computer and at the selection menu screen press F8 to view advanced startup options. Select the Directory Service Restore Mode option and log on. Use one of the following methods to change the local Administrator password:

1. At a command prompt, type the following command:

```
net user administrator *
```

2. Use the Local User and Groups snap-in (Lusrmgr.msc) to change the Administrator password.

When finished restart the computer. The Recovery Console can be launched and the new entered password can be used to log on in the console.

On Windows Server 2003 both the setpwd and the NET USER tricks will not work. The Directory Service Restore Mode Administrator password must be changed using the following method:

Click Start, Run and launch the ntdsutil utility.

At the Ntdsutil command prompt type the following command:

```
set dsrm password
```

At the DSRM command prompt type one of the following lines:

1. To reset the password on the server on which you are working, type:

```
reset password on server null
```

the null variable assumes that the DSRM password is being reset on the local computer. Type the new password when you are prompted. Note that no characters appear while you type the password.

2. To reset the password for another server, type:

```
reset password on server <servername>
```

where <servername> is the DNS name for the server on which you are resetting the DSRM password. Type the new password when you are prompted. Note that no characters appear while you type the password.

At the DSRM command prompt type q to return to the main menu. Finally at the Ntdsutil command prompt type q to exit.

Finally, the password can also be changed programmatically using the "Set DSRM Password" command in the .NET Server version of NTDSUTIL.exe, even while the Directory service is online.

6. Troubleshooting

This paragraph explains some issues which can occur in practice.

6.1. Hang during start-up

Symptom: When starting the Recovery Console option from the Windows 2000 Startup menu, the computer may stop responding (hang). Also, your monitor may display random characters and graphics.

Cause: This problem can occur if Windows 2000 is installed to a hard disk that is formatted with either the 16-bit or 32-bit File Allocation Table (FAT) file system and then you convert to the Windows NT file system (NTFS).

Solution: To resolve this problem, re-install the Recovery Console from the Windows 2000 installation CD-ROM.

6.2. Microsoft Windows XP disallows access

On many XP installations you can't start the Recovery Console because it won't recognize your password. This registry edit causes the Recovery Console not to ask for a password. This works for both XP Home and XP Professional.

Press on Start->Run and execute the Regedit.exe program.

Open the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\  
Setup\RecoveryConsole
```

Set the DWORD SecurityLevel value to 1

Exit the Registry.exe and reboot the system.

6.3. Microsoft Windows XP keeps restarting

When you start your computer, the Microsoft Windows XP start up screen appears, and then the computer restarts. The Windows XP logon screen does not appear.

This error can occur if the Kernel32.dll file is missing or damaged.

To solve this start the Recovery Console and log-on with the necessary credentials and perform the following actions:

1. At the command prompt, type systemroot and then press enter.
2. Type the following command:

```
ren kernel32.dll kernel32.old
```

and then press enter.

3. Type map and then press enter.
4. Note the drive letter assigned to the CD-ROM drive that contains the Windows XP CD. It is displayed in a format similar to the following:

```
D: \Device\CdRom0
```

5. Next type expand drive \i386\kernel32.dl_ (where drive is the drive letter of the CD-ROM drive that contains the Windows XP CD) and then press enter. For example:

Expand d:\i386\kernel32.dl_

Note the underscore character after the "L" in Kernel32.dl_

The following message appears:

```
Kernel32.dll  
1 file(s) expanded.
```

6. Quit using the console using the exit command and the computer will start normally.

7. Source

This document has used the knowledge which can be found within the following articles and websites.

kb229716, kb232948, kb235364, kb240831, kb251330, kb255205, kb258585,
kb291980, kb303139, kb307654, kb313670

http://www.petri.co.il/change_recovery_console_password.htm