Internal Communication Software

Implementation manual for system administrators
(for version 5.0 Players, 3.1 Editor)

Content

References

Ref 1 Netpresenter Software Overview
Ref 2 Netpresenter Message Server Installation Instructions

(These documents can be found at www.netpresenter.com/download)

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1 Introduction

This manual is written to aid the system administrator who has been assigned to deploy Netpresenter in an organization.

The Netpresenter software principally consists of a Screen Saver and a Desktop (Pop-up) Player. Both play back the presentation. See (Ref.1 “Netpresenter Software Overview”). A third application is the Netpresenter Editor that will be used by your communications department to create the presentations.

Chapter 2 gives a schematic overview, which should clarify how the applications fit together.

Chapter 3 describes how you could setup an environment suited for prototyping the installation of Netpresenter.

Chapter 4 is about the installation, on single PC’s as well as network installations.

Chapter 5 answers several questions a system administrator might have

Chapter 6 describes all details what options can be configured

Chapter 7 is about the Netpresenter scripting language.

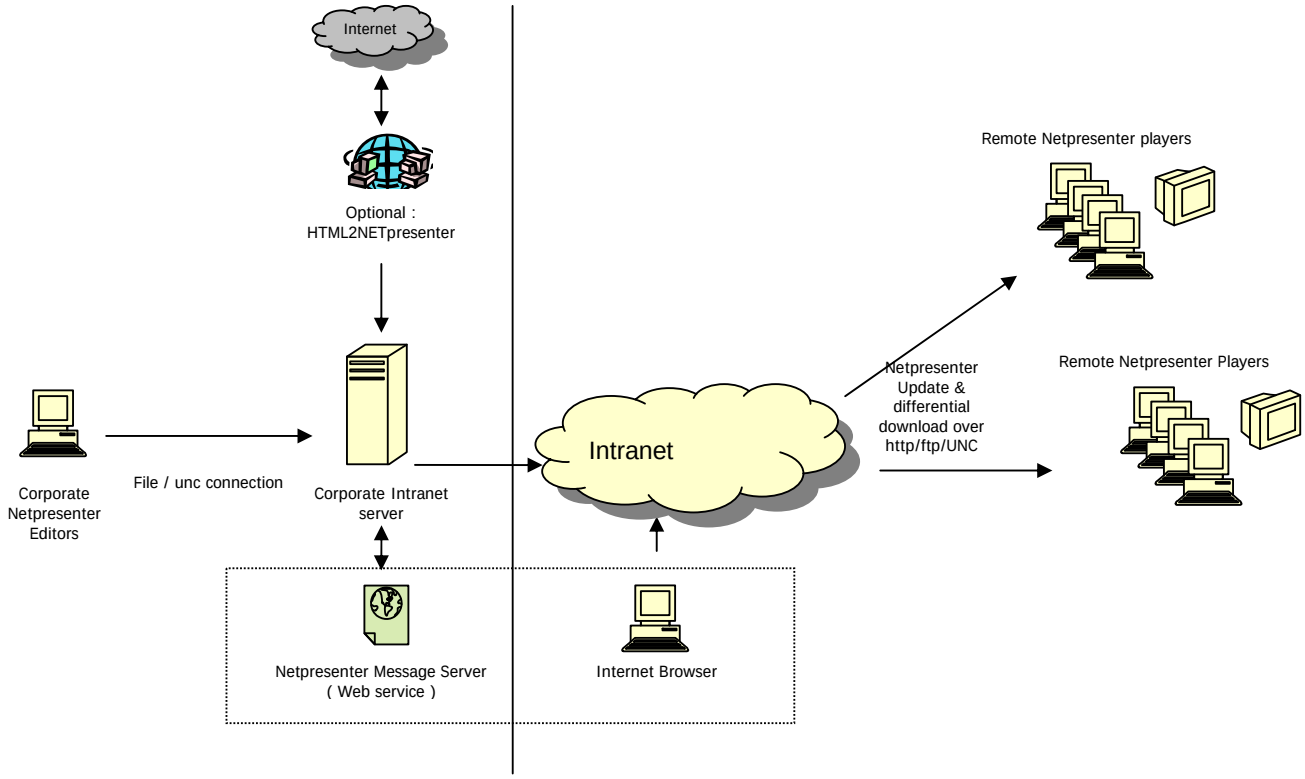
Chapter 8 describes Netpresenter add-on modules

Chapter 9 is a short introduction to our message server

Chapter 10 quantifies our statements about the (lack of) network load.

2 Schematic overview

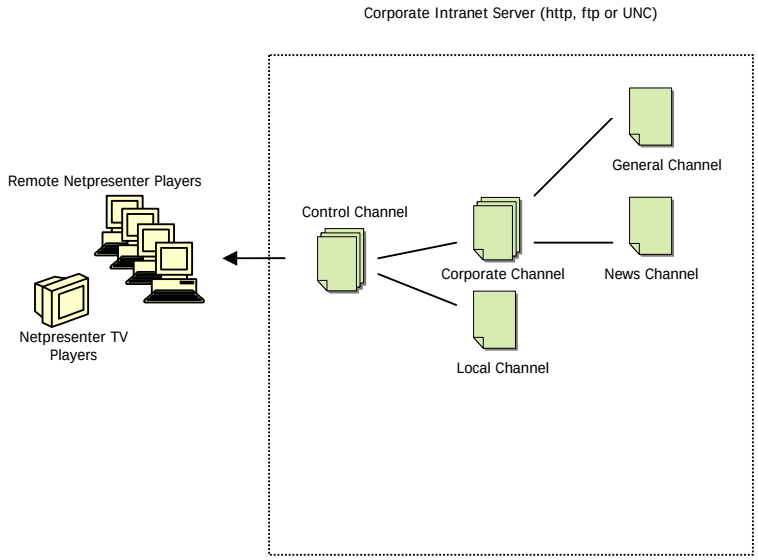
The scheme below shows how Netpresenter could fit into the infrastructure of a large company with several locations geographically spread.



This picture indicates how publications are produced using the *Netpresenter Editor* and published to the Intranet/Internet server. Optionally the *Netpresenter HTML2NETpresenter* application can be used to renew information automatically.

The Netpresenter Message Server allows authorized persons to add important information to an existing presentation. They can use any browser with access to the published location and do not need to have the Netpresenter Editor installed. *The Netpresenter Players on* client PC's approach the publications via HTTP, FTP or UNC links.

Netpresenter supports *personalization* via the concept of *sub channels*. A main channel may contain links to other channels that are controlled by different people at different locations (and stored on different servers). This concept is often used by companies that use corporate channels as well as channels local to a department or location. See the image below:



3 Set-up of (test) environment for Netpresenter

You will probably have installed the Netpresenter demo software package on your local machine first. (Also see the chapter on Installation Instructions).

For most installations you will now have enough knowledge to copy a channel to a remote location and deploy Netpresenter.

To explore more complex situations (more channels maintained by different departments at different servers, possibly located at geographical distant locations) try to set up an environment as follows:

1. Install Netpresenter (including editor) on one test machine
2. Create a directory on a (Intranet) server that your audience can access via HTTP, FTP or UNC
3. The person operating the editor should have the right to write files via UNC paths
4. On this server, create a subdirectory for each sub channel that has to be published.
5. Publish the sub channels to the directories on this server (use File/Copy of the editor)
6. Start a player on any PC that has read access to the location of the channels
7. Select "Properties" (e.g. via the toolbar, 2nd icon on the right)
8. Select the tab “Channel”
9. Click the URL or File button to enter the correct URL or UNC path to one of the sub channels
10. Verify that the player displays the channel correctly
11. Verify the other sub channels as well
12. Create a compound channel according to the example mentioned below. You can use any text editor, for example notepad. Note that channels like below may be created automatically. We can provide you with scriptable COM components upon request.

```
CHNL 1002
SLIDE "corporate channel"
BEGIN
 SUBCHANNEL "http://192.168.255.20/Channels/main/main.chn"
 ID 1
END
SLIDE "nl channel"
BEGIN
 SUBCHANNEL "http://192.168.255.20/Channels/nl/nl.chn"
 ID 2
END
```

13. Change the URL's so that they refer to the correct sub channels
14. Select this compound channel in the Player.
15. Verify that the Player show all channels
16. Set-up the update time of the Player ("check every .. Hours and .. Minutes" under the “Schedule” tab)
17. Change something to the sub channels with the editor, and publish this by using the File/Copy command of the Editor
18. Verify that the change is displayed within the update interval.

4 Installation Instructions

4.1 Introduction

This paper briefly describes how Netpresenter can be installed throughout a company

Installation of Netpresenter boils down to the following tasks:

- Actual copying of the files
- Determining the optimal configuration settings
- Changing the registry settings to select the Netpresenter screen saver
- Placing shortcuts at the appropriate places,
- Registering the `.chn` file association.

For demonstration purposes the Netpresenter software suite is shipped as a self extracting executable that uses the Microsoft Windows `.msi` installer technology. The self-extracting executable contains minimal Microsoft Installer redistributables and even installs on Windows 95B and Windows NT4SP3 systems.

Netpresenter will install successfully on the following systems:
Windows 95/98 SE/Me
Windows NT 4.0 SP3 or later
Windows 2000 SP1 or later
Windows XP
Requirements: 16Mb Ram, 2 Mb free Hard disk space, Internet Explorer 4.0 or later installed (Internet Explorer is usually installed as part of the standard Windows setup).
The Netpresenter installer does not attempt to upgrade system dll's.

For installation on systems that do not support any kind of Microsoft `.msi` support, we can also provide a custom installation tool (simple executable that should be called from a login script and makes the system changes needed).

The chapter "System changes after installation" details what files are being copied, what registry settings applied and what shortcuts are being set.

4.2 Installation as a demo package

This single-exe installation package (`netpresenter.exe`, downloadable from http://www.netpresenter.com/files/netpresenter.exe) is intended for single PC installations. It will install the whole Netpresenter suite, including the Netpresenter Editor (which is usually installed at a few PC's only), and a demo channel.
It contains the Netpresenter Installation and Microsoft redistributables for upgrading the Windows Installer version to version 1.1 if needed.

4.3 Network installation

Probably the easiest way to install Netpresenter is using group policies from a Windows 2000 server.

For networked installations we ship a package (available at http://www.netpresenter.com/files/installer.zip) that contains the following files:

```
Netpresenter.exe
Netpresenter.ini
Instmsi.exe
Instmsiw.exe
Netpresenter.msi
MsiTransform.exe
```

If all client systems already have the Windows Installer version 1.1 or better installed, you would only use the `Netpresenter.msi`.
The Netpresenter msi package can then be distributed via GPO (group policies), Microsoft System Management Server (SMS) or any other scripting or distribution solution (e.g. KIX), or just add a command like
`"msiexec /q /i Netpresenter.msi"`
to a login script.

When you start `Netpresenter.exe` or `Netpresenter.msi` without any options, this will install all Netpresenter features on the system (full installation, including a demo channel). If the package is installed in silent mode (network installation), the package will (by default) only install the player and Screen Saver. For other types of installations the `ADDLOCAL` property can be used in combination with features mentioned in section 4.3.2. Check the command line example for details. How to customize the application is described later in section 4.3.3.

If there are clients in the network which do not have Windows Installer version 1.1 you would use `Netpresenter.exe`. `Netpresenter.exe` checks the installer version on the client and uses either `instmsi.exe` (Windows 9x) or `instmsiw.exe` (Windows NT) to upgrade the clients to Windows Installer version to 1.1, if needed. After upgrading, `Netpresenter.exe` will launch the `Netpresenter.msi` package to complete the installation, Windows Installer parameters can be added to `Netpresenter.ini` file. Add the key-value pair CmdLine=<parameters> to the end of the `Netpresenter.ini`, parameters are discussed in 4.3.2.
(Note that `Netpresenter.ini` belongs to the installation package and is not the same as `netpres.ini`, which is the configuration file for the Netpresenter desktop player or screen saver).

4.3.1 Distribution using the group policy editor

On Windows 2000 Server systems with Active Directory you can distribute a package to client PC's using the group policy editor. For details please refer to your Microsoft documentation.

In short:

- Login as domain administrator
- From the Start Menu select "`Administrative Tools`"
- Select "`Active Directory Users and Computers`"
- Select the Group or Organizational Unit that contains the user's that you would like to install Netpresenter for
- Click it with your right mouse button and select "`properties`"
- Select the tab named "`Group Policy`"
- Select the Group Policy Object you'd like to change
- Select "`Edit`"

- Select "`User configuration`"
- Select "`Software Installation`" from the software node.
- Click with the right mouse button and select "`New package`"
- Browse to the location that contains the `.msi` file and select it

4.3.2 Command line options

The Netpresenter `.msi` file contains the following installable items (named 'features' in literature about the Microsoft Installer Technology):

Application	Name of this feature in .msi file
Netpresenter Screen saver	Screen Saver
Netpresenter Desktop Player	Player
Netpresenter Editor	Editor
Netpresenter Configuration tool	Config
Netpresenter Demo Channel	Demo

To install Netpresenter for "All Users" (machine based installation) add the property "`ALLUSERS="2"`" (without the outer quotes) to the command line.

Silent installation:
```
Msiexec /q /i Netpresenter.msi ALLUSERS="2"
```

Note: If you are using the `Netpresenter.exe` add "`CmdLine=/q /i`" (without quotes) to the `Netpresenter.ini`. `Netpresenter.exe` will call `msiexec` to install Netpresenter you do not need to start it manually. This works for all `msiexec` parameters

Installation which shows a progress bar:
```
Msiexec /i /qb-! Netpresenter.msi
```

Installation of the Screen saver only:
```
Msiexec /q /i Netpresenter.msi ADDLOCAL=screensaver
```

Installation of the Player, Screen saver and demo:
```
Msiexec /q /i Netpresenter.msi ADDLOCAL=screensaver,player,demo
```

Installation of Player and Screensaver for all users in `c:\apps`:
```
Msiexec /q /i Netpresenter.msi INSTALLDIR="c:\apps" ALLUSERS="2"
```

The installer reboots the system automatically if needed. To prevent this, set `NO_REBOOT_9X`, as follows:
```
Msiexec /q /i Netpresenter.msi NO_REBOOT_9X="TRUE"
```
Please note that when installing Netpresenter this way on Windows 9x systems, the newly installed Netpresenter screen saver will not be displayed in the list of screen savers until the system has rebooted.

To set the channel while installing (new installations only):
```
msiexec /q /i \\s1\install\netpresenter.msi NP_CHANNEL=\\s1\Netpresenter\index.chn
```

4.3.3 Using a .mst file (transform)

To be able to distribute different installations to different groups from a single `.msi` source, `.mst` files give you the flexibility to do so.
You would make a different `.mst` file for each group with unique installation requirements (for example to make groups of people that subscribe to the same channel).

The `.mst` file is a kind of a template file that effectively contains changes with the original `.msi` file. You will not have to make a new `.msi` file for each group and you will not have to redo this whenever you would want to update the software.

Generate an `.mst` file the way you prefer and start an installation as follows:
`Msiexec /q /i Netpresenter.msi /T netpres.mst`

A detailed explanation of the use of `.mst` files is beyond the scope of this document (see references).

4.4 Customizing the netpres.ini file

All Netpresenter client settings are stored in a single ini-file called `netpres.ini` which is located in the windows directory. To customize the package take a netpres.ini from a system configured correctly.

To add the optimized `netpres.ini` to the package there are three options:

1. Open the package using Orca or some other tool able to display and modify the installer tables and edit the inifile table directly.
2. Use `MsiTransform`. This tool is created by Netpresenter to automate the process of editing the inifile table: Simply Launch this exe, select the `.msi` file and the `.ini` file to be merged and the `.msi` file will be updated to include the modified `.ini` file.
3. Use a transform e.g. `Msiexec /q /i Netpresenter.msi /T netpres.mst`

4.5 Impose Screen Saver Settings using group policies

On installations with a Windows 2000 (or newer) server, one may enforce Screen Saver settings from a central location via group policies as well. This will supersede any settings made by the installation package on each PC locally):
One way to do this is as follows:

- Login as domain administrator
- From the Start Menu select "`Administrative Tools`"
- Select "`Active Directory Users and Computers`"
- Select the Group or Organizational Unit that contains the user's that you would like to install Netpresenter for
- Click it with your right mouse button and select "`properties`"
- Select the tab named "`Group Policy`"
- Select the Group Policy Object you'd like to change
- Select "`Edit`"
- Select "`User Configuration`"
- Select "`Administrative templates`"
- Select "`Control Panel`"
- Select "`Display`"
- Set "`Activate Screensaver`" to "`enabled`"
- Set the "`Screensaver executable name`" to "`Netpresenter.scr`"
- Optionally also set the timeout period.

Using group policy settings to impose screen saver settings is best in an environment with roaming profiles, since in such an environment the installation package can only change the *current* user's screen saver settings.

Tip: For testing use "`gpupdate.exe`" on a client to force reloading group policy settings. When not using this it may take hours before the changes have replicated to the clients.

4.6 Uninstall

Netpresenter can be uninstalled from by selecting “remove” from the (Add/Remove Software applet in Control Panel).

For a silent uninstall of Netpresenter call

```
MsiExec /q /x Netpresenter.msi
```

4.7 System changes after installation

During the installation, the Screen Saver is copied in the Windows directory and the other files will be stored in the <Program Files>/Netpresenter directory. Shortcuts to the applications will be added to the start menu and the current Screen Saver will be set to the Netpresenter Screen Saver (if allowed by your policy settings!). The complete installation (including editor, excluding channels) is 1.31 MB large). No dll's will be copied to the local system.

After a complete installation (including the editor) the following files will have been copied:

In the installation directory:

NetEd.exe	The editor. To create presentations
NetEd.hlp	The editor's help file.
NetPlay.exe	The player
NetPlay.hlp	The player's help file.
NetProp.exe	Separate application for maintaining the .ini settings of the Netpresenter applications.
NpAgent.exe	Background process necessary on NT systems to display hyperlinks on the default desktop. (see the chapter on locked desktops) For installation on Windows 9x systems is this file not necessary and will not be installed.
Startup.chn	The channel that is displayed shortly when starting up the editor.
Startup\Back1.jpg Startup\Back2.jpg	Bitmap files that are used with the channel mentioned above.

In the windows directory:

Netpresenter.scr	The Screen Saver..
Netpres.ini	Netpresenter configuration file. See appendix 2 for an explanation of the keys used. This file is not necessary when using the IniFileMapping (see appendix 1)

In the installation directory are also the following directories:

Store	With a default installation the presentations are cached here. By central caching on the PC multiple caching when more people using the same PC is prevented.

The following registry settings will also be changed or added:

All users under HKEY_USERS, including the default user:

.default\Control Panel\desktop\SCRNSAVE.exe =Netpresenter.scr (Note: On Windows 9x systems, this key is placed as SCRNSAVE.EXE in the system.ini file)	This key defines which Screen Saver is configured. For compatibility with older Windows versions, the filename will be stored in 8+3 file format (Netpre~1.scr).
.default\Control Panel\desktop\ScreenSaveActive =1	This setting activates the Screen Saver.

The following links (shortcuts) are added:
Documents and Settings\All Users\Menu Start\Programs\Startup (Note that the actual name is language and O.S. dependent):

Links to `NetPlay.exe` (minimized)
Links to `NpAgent.exe` (On NT systems only)

`Documents and Settings\All Users\Menu Start\Programs\Netpresenter` (language and O.S. dependent):
`NetPlay.exe`
`NetProp.exe`
`NetEd.exe` (if installed)

The `.chn` extension will also be associated with the Netpresenter player.

If the demo package is installed, a demo directory with a demo channel will also be added to the Netpresenter directory.

4.8 References

For details on how to use the Microsoft Installer please see the documentation provided by Microsoft
http://support.microsoft.com/support/default.asp?SD=SO&PR=wininst
For example: “Windows Installer: Benefits and Implementation for System Administrators”, by Microsoft

Also see “Windows Installer Technology for System Administrators” by Darwin Sanoy and Jeremy Moskowitz, published by Wise Solutions and Realtimepublishers.com
`http://www.wise.com/ebook/ebook_chapters.asp`

4.9 Frequently asked question

What happens if we use Novell?
Windows Installer is running locally on the client, it can be controlled by policies in a network with a Windows Domain Controller or Active Directory.
If a customer uses Novell he cannot benefit from these policies but the Windows Installer program is still running on the (windows) client.
No matter the operating system of the server, the Netpresenter image file can be located on a share on the server and the client computers may call it from a login script.

5 Capita Selecta

In this chapter we attempt to highlight some questions that may rise.

5.1 Network load

Presentations are published on file servers or intranet/internet servers. The Netpresenter Players (Player en Screen Saver) access these presentations through means of file sharing (UNC), HTTP or FTP. Because of scalability of the network HTTP or FTP are preferred.

The Netpresenter Players caches the presentations on the hard disk of the user. A presentation consists of one or more script files (`.chn` files) and the image and multimedia files, which are being used by the presentation.

At configurable time-intervals Netpresenter will compare the timestamps of the locally cached channel files with the timestamp of the original on the server. As soon as changes are detected, the locally cached file will be renewed. Images and multimedia files that are referred to by the channel will (optionally) be monitored as well.

Because of smart caching and the relatively small size of a channel file, network load is extremely low. A typical presentation (10 slides, 300kB including jpeg bitmap files), of which the textual contents changes daily, the network load is only a few Kbytes per client per day. Typically less than the network load caused by downloading one HTML page.
(Also see the chapter named "Network Load Study")

5.2 Personal Content

Larger companies often use different channels for each target group. There is often also a corporate channel published to everyone. This can be implemented by grouping the corporate channel and target group specific channels to one compound channel. Such a compound channel is pretty simple and can be crafted manually or generated by simple tools (such as a scriptable COM server we provide upon request).
If the channels where users are 'subscribed' to are unique per person, one can choose to automatically generate personal channels by using (script) tools which have access to the required information (such as to which target group stipulated persons belong)

Below an example of such a channel in the Netpresenter script language:

```
CHNL 1002
SLIDE "Corporate channel"
BEGIN
 SUBCHANNEL "http://www.company.com/channels/corporate.chn"
 ID 1
END
SLIDE "Local channel"
BEGIN
 SUBCHANNEL "http://www.local.company.com/channels/local.chn"
 ID 2
END
```

(See the chapter named "The Netpresenter Script Language" for a complete description of the Netpresenter script language.

5.3 Link with content management systems

To automatically update publications one can consider a link with a content management system. The content management system could create a channel or modify an existing channel. Simplest perhaps is to create a sample channel with templates first, using the Netpresenter Editor. The content management system could then add slides based on the templates or replace keywords in the original.

(See the chapter named “The Netpresenter Script Language” for a complete description of the Netpresenter script language.

5.4 Publication of channels

The editor presently does not support publication via HTTP or FTP.
Best is to give those who compose and publish channels write access via file sharing to the channel location. After testing locally the actual publication to a server is then done by using the "File/Copy" command of the editor.

5.5 Locked desktops

For security reasons, screen savers on Windows NT systems are displayed on the so called screen saver desktop. Regular applications display on what is named the default desktop.

Optionally one must first enter a username/password combination before switching from the screen saver desktop to the default desktop.

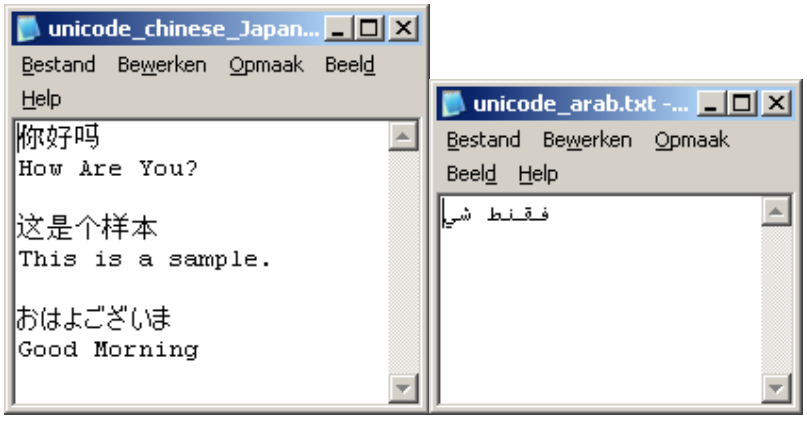
One of the strong points of the Netpresenter Screen Saver is that it supports hyperlinks to pages or documents anywhere on the Intranet or Internet.
When the hyperlink is requested the Netpresenter Screen Saver will not start any applications (Browsers, text processors etc.) on the screen saver desktop, since this would break the security. Instead, NPAgent.exe, a background process, will display the requested hyperlink on the default desktop. If password protection is set, the user should unlock his workstation first.

5.6 Screen Saver on NT systems where no-one has been logged on

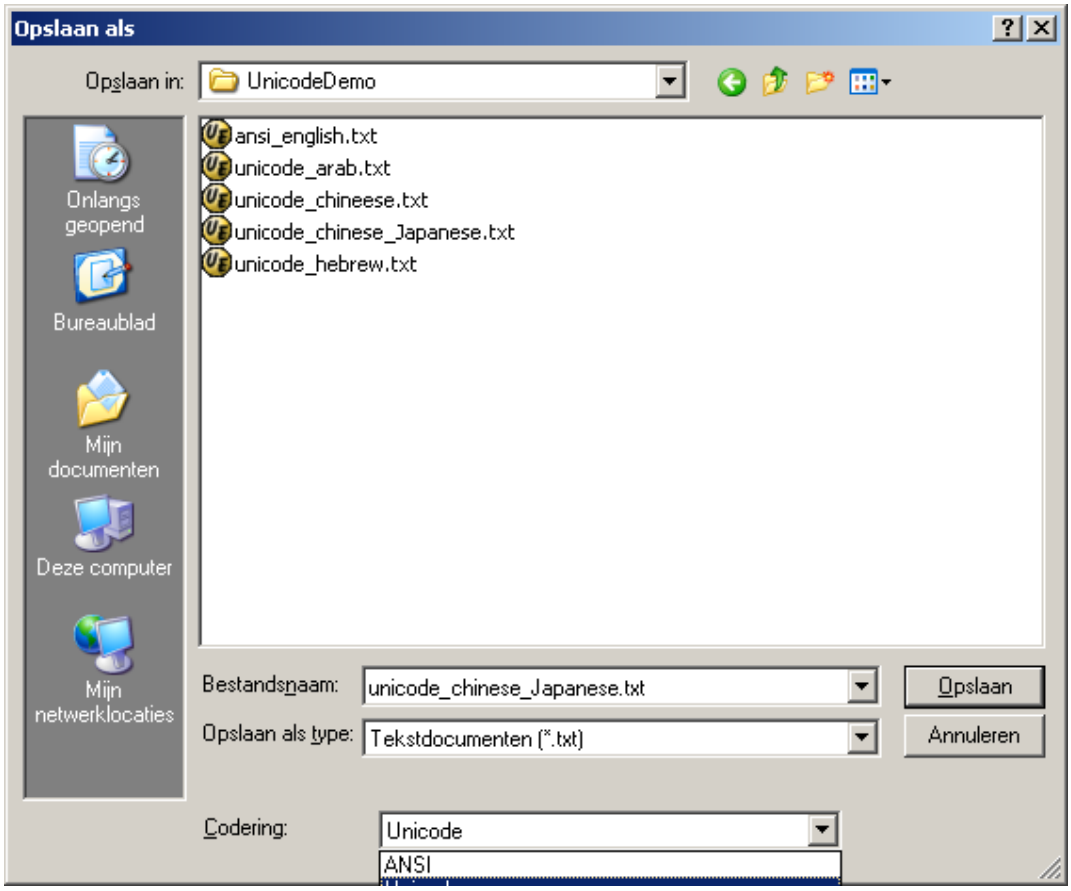
On NT systems, where the Screen Saver is started when no-one has been logged on yet, the screen saver will run under the system account. Processes started by this account generally cannot access files on a file server via file sharing.
If this is the method used to access channels, these will not be updated on computer systems where no one has yet logged in. This problem does not occur if channels are accessed via HTTP or FTP.

5.7 Unicode text

Netpresenter build 154 and up display Unicode text from external text files.
These file may be edited with notepad or another simple editor:

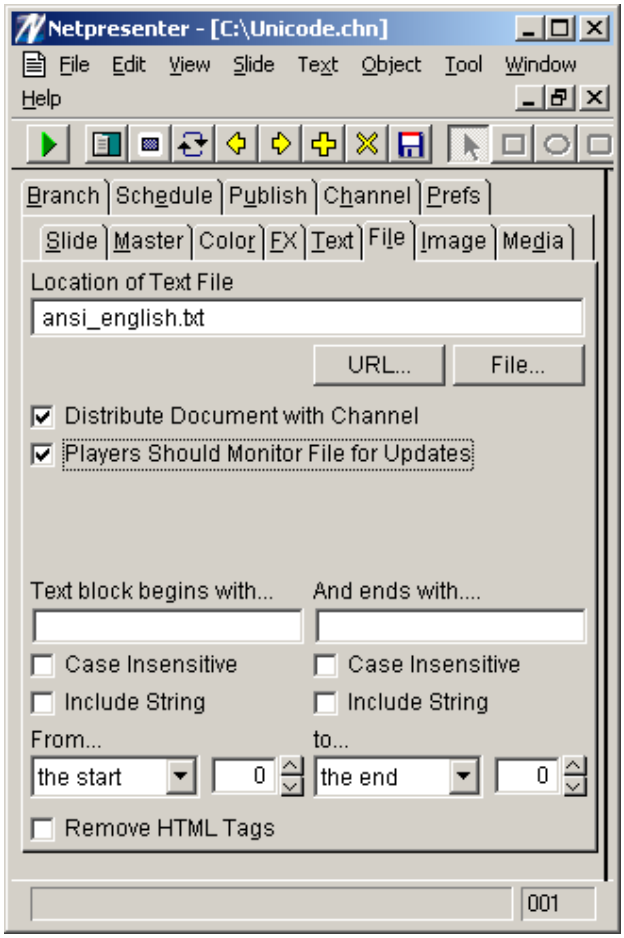


Choose "Save As" to save the file and make sure the coding is set to Unicode. (Not Unicode Big Endian).



The following screendump shows how many completely different languages can be shown on one slide:

In the editor, select such a file using the “File” tab, like:



5.8 Synchronize slide change with the duration of a video file

In the Netpresenter editor move the slider that indicates a slide's display duration all the way to the left until the numerical indicator for duration displays "wait". Netpresenter players (build 179 and up) will wait until the last video to be displayed in an object has finished before advancing to the next slide. When setting the slide's duration to "wait" AND selecting the "play and loop" option for the video, the slide will play the video forever.

5.9 Netpresenter Editor and Asian Language support

On PC's with Asian language support enabled, the editor may misalign centre or right-aligned text. If this is the case, disable Asian language support or use the player for previewing a channel.

To fix the problem for the editor (recipients of the presentations are unaffected):

On the Editor's PC

- Open control panel
- Select "regional and language options"
- Select tab "languages"
- Deselect all checkboxes under "Supplemental language support"

This should solve the alignment problem.

5.10 ScreenSaverGracePeriod

The ScreenSaverGracePeriod registry setting is available in Windows Server 2003, Windows 2000, and Windows XP, under HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon.

The ScreenSaverGracePeriod entry specifies when password protection of a screen saver becomes effective. This entry specifies the delay between the appearance of a password-protected screen saver and the enforcement of the password requirement.

Password protection of a screen saver is not effective immediately. By default, a brief period elapses within which the user can use the mouse or the keyboard to stop the screen saver without entering the password. This delay is designed to minimize the disruption that results when the screen saver starts while the user is working.

You can add this entry to the registry to adjust the length of the delay. To make password protection effective immediately, set the value of this entry to 0x0.

This entry does not exist in the registry by default. You can add it by using the registry editor, Regedit.exe.

Also see:

www.microsoft.com/resources/documentation/Windows/2000/server/reskit/en-us/Default.asp?url=/resources/documentation/Windows/2000/server/reskit/en-us/regentry/69671.asp

www.microsoft.com/technet/prodtechnol/windowsserver2003/library/TechRef/d1941ca0-b6b7-4b67-9cc6-19c3d612c4ec.mspx

6 Configurable Options (Netpres.ini)

6.1 Introduction

Preferably use `NetProp.exe` or the Desktop Player (right mouse click on icon in taskbar notification area) to edit the configuration information stored in `Netpres.ini`.

For historical reasons, some of the keys may seem to be in an inappropriate or incorrect section. These discrepancies are maintained in order to minimize problems for existing installations.

6.2 Guidelines

The default settings are useful for demonstration purposes, but less useful for a company wide installation.

- If you do not want each user to be able to change the properties themselves, set *AdPropTabs*=None in the [General] section.
- You may also want to make the configuration file read-only. If this is the case he current window size and position of the player will no longer be saved when shutting down, so make sure the .ini file contains reasonable values.
- "Secure" W9x systems: See the *DoNotBranchWhenNotLoggedIn* option in the [Player] section.
- Terminal Server systems: See *SchedulingPriority*=16384 in the [SaverOptions] sections. Also make sure that each user has his own store directory. The store directory cannot simple be put in the `%temp%` directory since the screen saver expands environment variables often different from the player (due to the design of Windows).
- Multiple users on the same computer: If some users subscribe to other channels as others: If you would prevent them from seeing reminiscents of each others channels it may be wise to either clear the store before logging in or before logging out or give each user his own store directory.
- Emergency popup: When Netpresenter will be used to popup important messages, you may want to deny a user the right to exit the application. *Set PlayerMayExit*=0 in the [Player] section.

6.3 Detailed description of every keyword

Unless noted otherwise, these options are most comfortably set by the Netpresenter property dialog.

[Screen Saver]
Channel=[Location of source channel]
This is a valid file path (UNC or URL) to a channel (`*.chn`) file that the screen saver and player will display and monitor for updates.

LocalPath=[Location of the folder for storing downloaded channels]
By design, Netpresenter caches a channel and its associated files on a local hard drive. This is a file path to a location where current channel data is stored.

Message=[A short text message to print beneath the channel]

Minutes=[Number of minutes to wait before looking for new information]
Netpresenter usually waits for a short amount of time before examining a remote channel for new information. You can set this value to a higher value to minimize network bandwidth.

TimeFormat=[A 'C' style string for formatting time]
Netpresenter stores the style for formatting time in this string. It uses 'C' style conventions. For example: "`%I:%M:%S %p`".

Updates=[A bitwise addition of the following values]

Hex	Decimal	Function
0x0001	1	Check for new information when the player starts
0x0002	2	Check for new information in time intervals

This controls how the players look for new information. By adding the two flags together and setting `Updates=3`, you can tell a Netpresenter player to look for new information when it first starts running and then after each time interval.

MinimizeOpenWindowsOnBranch=[0,1]
When set, this option causes all full screen desktop applications except the browser to minimize after someone has clicked on a URL from the screensaver.

[Player]
PlayOptions=[A bitwise addition of the following values]

Hex	Decimal	Function
0x0001	1	Show the time at the bottom of the player display
0x0002	2	Don't play any sound
0x0004	4	Don't display any graphics on the slide
0x0008	8	Don't scale the slide
0x0010	16	Don't use transitions
0x0020	32	Don't show the toolbar on the player
0x0040	64	Always show the player on top of other windows
0x0080	128	Don't download any attachments with the channel
0x0100	256	Allow the player to popup for priority information (Note: Superseded by *Popup* key in [Player] section.
0x0200	512	Don't confirm that the user wants to exit
0x0400	1024	Disable the screen saver display in the control panel

This key, like many others, is currently only stored as a decimal value and not in hexadecimal.
To set multiple values, simply add together the decimal values for each selected flag. For example, to disable transitions and the exit dialog, set *PlayOptions* to 528. This is the sum of 16 (Don't use transitions) + 512 (Don't confirm that the user wants to exit).

Style=[Desktop Player Window Type]
One of the following:
0 for a floating window;
1 for a fixed borderless window; and
2 for a window that covers the entire screen.

X=[Left edge of player window in logical units]
Y=[Top edge of player window in logical units]
W=[Width of player window in logical units]
H=[Height of player window in logical units]

These values are reset each time the user moves the player window.
Note that in case of popups because of channel updates, Netpresenter will increase the width to at least halve the screen width and increase the height to at least halve the screen height if necessary.

PlayerMayExit = [0 to deny the user to close the player, 1 to allow it]
(Please also review the bit value 0x0200 for the *PlayOptions* key in the [Player] section. This bit value determines whether the user should be asked to quit. Not whether he should be allowed or denied quitting).

Note that it does not make much sense to set this option to 0 while forgetting to set *AdPropTabs*=None (See the [General] section).

Popup = [0 = never, 1 = selective, 2 = every update]
(For backward compatibility reasons, when this key is not present, the bit value 0x0100 for the *PlayOptions* key in the [Player] section will be taken into account. When set, this bit value determines that the player should popup every time a channel has been updated).

DoNotBranchWhenNotLoggedIn = [0, 1]
Windows 9x have no native way to prevent users from accessing the internet/intranet when no one is logged in.
Some companies use 3rd party software to secure the win 9x desktop as good as possible, but this software does not catch the screen saver.
When setting this option to 1, the Netpresenter Screen saver will not execute any applications (browser or other) when a user who has not yet logged in, clicks on an object with a clickable branch attached.
(This value is not handled by the Netpresenter Property Dialog.)

MenuOptions=[A bitwise addition of the following values]

Hex	Decimal	Function
0x0001	1	Show Channel Selector
0x0002	2	Disable Screen Saver
0x0004	4	Start Screen Saver now

(This value is not handled by the Netpresenter Property Dialog.)

MenuTextDisableScreenSaver=Presentation Mode
When present, this option sets the name being displayed in the context sensitive menu of the player for the “Disable Screen Saver” function to “Presentation Mode” (See *MenuOptions*=2).
(This value is not handled by the Netpresenter Property Dialog.)

OnSelectivePopupOnlyShowHighPrioritySlides=[0,1]
When a presentation contains any slide with its priority set to 10, the player may popup immediately (see *popup*).
When setting *OnSelectivePopupOnlyShowHighPrioritySlides*=1, the all other slides will not be shown.

ConfigureChannelSwitcher=[0,1]
When set to 1 (this is the default), it is possible to use the branches for switching channels as well.
Also see chapter 7.2.3.1.9.1.8.2.

RetractPopupWhenAlertHasGone=[0,1]
When enabled, popups will be retracted when alert slides are being withdrawn from a channel.

PopupShouldBeFullScreen=[0,1]
On alerts, the player will popup full screen.

EnableGdiPlus=[0,1]
When enabled (by default since build 199) more image formats (.png, more .gif formats) are supported on systems that have gdiplus.dll installed (all Windows Xp and Vista systems). On systems without gdiplus.dll a best effort done to display images as good as possible. Unsupported images will be skipped.

EnableFlash=[0,1]
This key determines the support for flash .swf files in a channel. Streaming video using Flash is also supported.

[General]

Name=[Name of Netpresenter User]

This information is printed in the Netpresenter About dialog.
(This value most often filled in during installation)

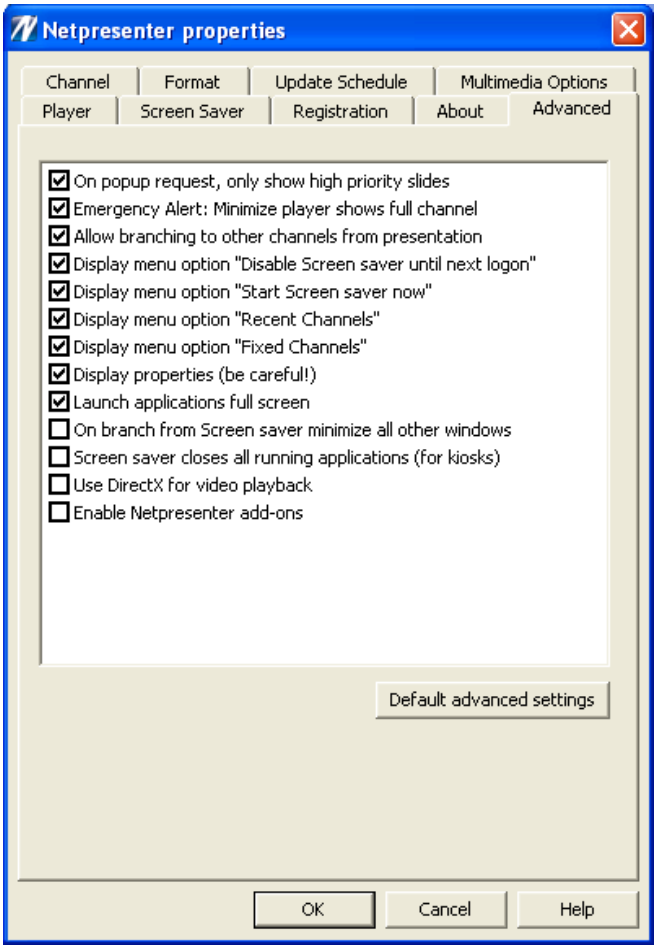
Organization=[Name of Organization]
This information is printed in the Netpresenter About dialog.
(This value most often filled in during installation)

Serial=[The serial number assigned to the user]
The serial number is important in a Netpresenter installation because the Netpresenter executables recognize valid serial numbers and enable more features when a valid number is available. It is not a good idea to set this value directly because the functionality of Netpresenter might become limited.
(This value most often filled in during installation)

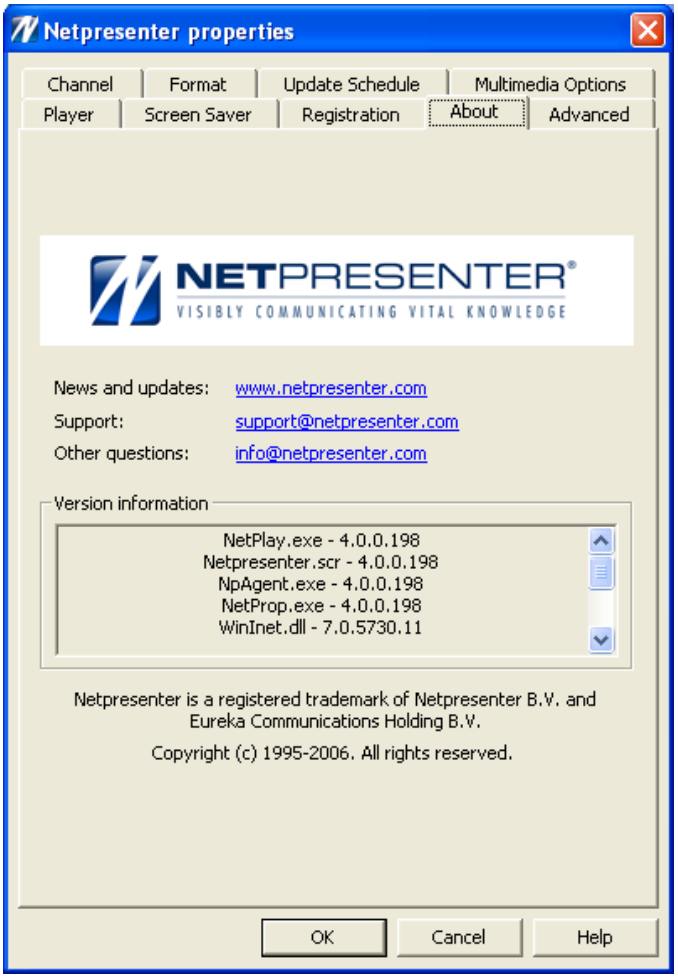
Path=[Path to the folder where Netpresenter is located]
This is the folder where most of the Netpresenter programs and files are located.
(This value set correctly during installation)

Schedule=[A schedule for downloading updated channels]
A list of 24 numbers that store packed information about when to download new information from a remote site. It is used to schedule. If this value is undefined, the players assume that you want to want to download new information at any time of day. If you want to set this value directly in netpres.ini, it is best to create a schedule in the properties dialog and then copy it for later use.

AdPropTabs=
This key determines what tabs of the “Netpresenter Properties” dialog will be visible to the end user. The key is affected by the checkbox titled “Display properties”. Unchecking this value corresponds to AdPropTabs=None in netpres.ini; which disables the possibility to view the dialog at all.



To only display some tabs, concatenate there corresponding keywords to the value of *AdPropTabs*, for example when *AdPropTabs* is set to “About Identity”, the following dialog appears as:



The available keywords are:

Keyword	**Corresponding tab**
Format	Format
Channel	Channel
Schedule	Update Schedule
Options	Multimedia Options
Players	Desktop Player
Identity	Registration
Advanced	Advanced
About	About
Screensaver	Screen Saver
None	No Netpresenter properties will be displayed

AdDeveloper=[0 disable; 1 to enable]
Enables special administrative features in the Netpresenter programs. Currently, this only includes a field for creating custom transitions in the editor. The default value is disabled.
(This value is not handled by the Netpresenter Property Dialog.)

AdRun=[0 to disable; 1 to enable]

The players can launch executables. For security reasons, this feature is normally disabled. You can enable it by setting this value to 1.
(This value is not handled by the Netpresenter Property Dialog.)

TriggerSelfHealing=[0,1]
When installing on a Windows NT PC with multiple user's who login via a domain controller, each user's screen saver settings are stored on the domain controller and cannot be updated from an installation procedure. By setting this option to 1, the Desktop Player will, upon start-up, check the current user's screen saver setting and set it to the appropriate values.

WebServerScriptExpansion=[0,1]
When set, one may pass parameters to web services. The data that will be output by the web server will be cached locally.

PassiveFtp=[0,1]
When set, for ftp transfers the internet connection will be set to passive mode.

Path2FileContainingBranch=
(Available from Build 149)
When someone clicks on a URL from a Netpresenter Screen Saver running under a Windows NT system, the branch will be stored in the directory indicated here.
The default path is the file `launch.txt` in the Monitor subdirectory of the directory denoted by the *Path* key in the `[General]` section. (See above). Most often similar to:

```
c:\program files\netpresenter\Monitor\launch.txt.
```

By using *Path2FileContainingBranch* one may set it to any file in any directory.
Environment variables will be expanded .
Please note however that you should not use environment variables like %temp% or %userprofile%, since the screensaver expands these differently then programs started explicitly by the user. (In detail: On Windows NT systems the screen saver is usually started by the WinLogon process. This process does not pass the user's environment variables to its child processes. The %temp% variable of screen savers usually expands to c:\windows\temp or something similar. Most other user processes of Windows 2000 und up will place the %temp% directory under the user's home directory).

LogEthernetTraffic=[0,1]
To assist in tracking network related problems we can make available a build with built-in logging of Ethernet traffic. Whether logging is in effect or not will be controlled by this switch.

FallBackOnOriginalFileNames=[0,1]
When editing a channel one usually retrieves images from all kind of directories of all kind of servers (or servers mapped to local drives) that the person working with the editor has access to.
Usually other people working for the same company have a completely different infrastructure and do not have the same drive mapping nor access to the same servers.
By publishing a channel after editing (using the file/copy option), the editor will copy all images to the same directory as the channel.
All players will now open the image files in the same directory as the channel, using the same protocol used for opening the channel.

If a channel is published to a UNC path (for example \\server\npdemo\index.chn) but all players refer to it via a HTTP path (for example http://intranet/npdemo/index.chn) all images and multi-media files will also be accessed using the HTTP protocol.
It will often even be undesirable to open an image file using the same directory path as stored in (an unpublished) channel even if the players have (read) access to it. This is because the HTTP protocol is much more scalable then the SMB protocol used to access files via their UNC path.

This option has been made available to assist people using the editor that would like to view a channel with the player without having to publish the channel first: When the file cannot be found where expected (i.e. the same location as the channel), players with the option *FallBackOnOriginalFileNames* set to 1 will try to locate image and multi media files using the original path names (for example \\server\npdemo\image1.jpg, or z:\npdemo\image1.jpg).

After a demo installation this value is set to 1 by default which is best for a quick evaluation of Netpresenter, but for a roll-out to multiple clients.

Locale=English
This key determines how the characters in a channel will be displayed. A locale is a set of user preference information related to the user's language, country/region, and cultural conventions. For Netpresenter players the locale indicates the codepage to be used for displaying a channel's contents. I.e. ANSI codepage 1252 (ANSI Latin 1) will be used for English and most European languages.

AutoIniUpdate=[0,1]
This key controls whether Netpresenter attempts to download and interpret a centrally stored netpres.ini file. If the current channel is set to http://www.company.com/Nepresenter/index.chn, the Desktop Player will attempt to locate a file named http://www.company.com/Netpresenter/rnetpres.ini, i.e. with exact the same name as the channel and in exactly the same location. The extension is the only thing that differs.

The locally stored netpres.ini file will be overwritten (but only if the file is writable by the user running the player).

Note that here are some issues with respect of updating the .ini file:
If a user is denied write access to netpres.ini using the Access Control List on a NTFS partition, the players will continue to read the remote .ini file from the cache. To the user it appears as if the changes are applied.
If at any moment the screensaver kicks in while nobody has logged-in yet, it will run under System user credentials and have enough rights to update netpres.ini. Using the read-only attribute to deny change access has no effect.

BitfieldParametersToAddToChannel
When requesting a url, a parameter string make be added, like so:
'http://chnv1.netpresenter.com/?UniquePlayerId= 3be381f7-e8ee-4a92-bf7b-7bb5064f9eb9
&IpAddress0=192.168.255.100&HostName=PC015&UserName=jos&DomainName
=CompanyXyz&InstallationId=ac43e83d-8cfd-417b-9b45-e8159d0c5e25&SidUser=S-1-5-21-
1890798386-2750590238-2400352320-1000'

What parameters to include, if any, depends on the following values:

This key may have the following values:

decimal	hex	Corresponding parameter with Url	
1	1	UniquePlayerId	The UniquePlayerId corresponds to the value of the key 'UniquePlayerId'in the [general] section of netpres.ini. This key is automatically inserted during installation of version 200 or higher.
2	2	IpAddress0	When requested from a PC with multiple IP addresses, all addresses will be added (as IpAddress1, IpAddress2 etc.)
4	4	HostName	
8	8	UserName	
16	10	DomainName	
32	20	InstallationId	The InstallationId corresponds to the value of the key 'InstallationId'in the [general] section of netpres.ini. This key is automatically inserted during installation of version 200 or higher. One may change this key in the .msi file using any .msi editor (for example 'Orca')
64	40	[Reserved]	
128	80	SidUser	

The values may be added bitwise.

UniquePlayerId=
See BitfieldParametersToAddToChannel
The value in this field is determined automatically during installation.

InstallationId=ac43e83d-8cfd-417b-9b45-e8159d0c5e25
See BitfieldParametersToAddToChannel
A administrator may set this value before rolling out the installation.

[Editor]
Grid=[A bitwise addition of the following values]

Hex	Decimal	Function
0x0001	1	Show the grid on the editor display
0x0002	2	Lock object points to the grid

(This value is not handled by the Netpresenter Property Dialog.)

GridX=[Width of grid cell in the editor]
GridY=[Height of grid cell in the editor]
(These value are not handled by the Netpresenter Property Dialog.)

Recent1=[A channel that was recently opened in the Netpresenter editor]
...
The editor keeps a record of the last six channels that were opened. These channels are attached to the File menu and allow the user to quickly return to them. It is unlikely that you would want to set these values directly.

[Source]
Proxy=
This option should be left blank in most cases. Netpresenter will use the proxy settings used by Internet Explorer. Only in the case one would like to bypass the proxy settings set by your operating system it makes sense to change this version.

[SaverOptions]
SchedulingPriority = [one of the following values]

Hex	Decimal	Function
0x0020	32	Normal
0x4000	16384	below normal

In Windows Terminal Server environments it may be advisable to lower the priority of the screen saver. By setting *SchedulingPriority*=16384 in the [SaverOptions] section, the saver will yield faster to other processes.
32 is the default value. Do not change it unless you experience that hundreds of screen savers running on one terminal server cause performance problems. (Other values are possible but not recommended).
(This value is not handled by the Netpresenter Property Dialog.)

[CH_XX]
Display=[The title to display in the Channel Selector]
Path=[The path to the channel]
(These values are not handled by the Netpresenter Property Dialog.)

Example:
[CH_01]
Display=Netpresenter Demo
Path=http://www.netpresenter.com/channel/index.chn

[CH_02]
Display=Message Server Demo
Path=http://www.netpresenter.com:90/chn/index.chn

Etc.
Up to 10 channels may be added this way. The first channel omitted will indicate the end of the list, i.e. if the sections [CH_01], [CH_02] and [CH_04] are present, only the 1st 2 channels will be displayed.

[Channels]
ChannelFilePath=\\<server>\<share>\channel.ini

By (optionally) adding a section [Channels] with key *ChannelFilePath*, the player will read the channel information (the CH_XX sections) from a file stored centrally.
(This value is not handled by the Netpresenter Property Dialog.)

[OptimizeScreenSaverEffectiveness]
To better guarantee that messages will be visible, Netpresenter build 184 and above offer the possibility to prevent monitor power down or system standby.
Note that when a system is running on batteries, Netpresenter will never interfere with a system's power management.
The keys described below correspond to the dialog "optimize screen saver effectiveness" in the "Screen Saver" tab of the dialog titled "Netpresenter properties".

ControlPowerManagement=0
If set to 1, Netpresenter will attempt to control a PC's power management for example by denying monitor power down requests during working hours, so that presentations will remain visible.

PowerManagementMethod=1
If the value of PowerManagementMethod is set to 0, Netpresenter will always control PowerManagement. If it is set to 1, Netpresenter will only control it in the time denoted by *SecsPowerdownNotAllowedStartTime* and *SecsPowerdownNotAllowedStopTime*.

SecsPowerdownNotAllowedStartTime=28800
This value denotes the time (in seconds since the day started) that Netpresenter will control power management (if PowerManagementMethod=1). If *SecsPowerdownNotAllowedStartTime*=28800 denotes a start time of 8:00h local time (8 * 60 * 60 = 28800).

SecsPowerdownNotAllowedStopTime=64800
With a value of 64800 (= 18 * 60 * 60) Netpresenter will stop controlling PowerManagement at 18:00h (6 PM) This means that after 6 PM Screen Powerdown is allowed, the system may go into suspend etc.

DenyMonitorPowerdownRequest=1
When set to 1, Netpresenter may attempt to prevent the monitor from entering a power down state, but only if the following conditions are met:
- The system must NOT be running on batteries
- The option "*ControlPowerManagement*" must be set
- The current time must fall within the period that Netpresenter is allowed to interfere with power management

DenySuspendRequest=0
When set to 1, Netpresenter will attempt to prevent the system from going into suspend mode, but only if all other conditions are met (see DenyMonitorPowerdown)..

6.4 Mapping of .ini files in the Windows Registry

On NT systems the `netpres.ini` can be mapped on user specific entries in the Windows Registry, for the sake of centralized management.

Create the following registry directory:
"*HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\IniFileMapping\netpres.ini*"

And put the value of the key "`(default)`" (Note: What is being displayed by the registry editor for `(default)` is language dependent).

USR:Software\Netpresenter\ini.

All references to the file `netpres.ini` will be mapped to:
`HKEY_CURRENT_USER\Software\Netpresenter\ini`

See Microsoft documentation (MSDN, TECHNET) for additional information on ini file mapping

7 The Netpresenter Script Language

7.1 Introduction

This chapter describes the syntax of the script language used to describe channels (“slideshows”) in several Netpresenter products.
Normally you would not need to read this chapter, unless you develop software that generates channels based on for example the contents of content management systems.

The targeted reading audience for this document are people with a computer science background.

Note that most parameters will not be repeated if they remain the same.
The players use the last parameters recorded when creating new objects.

The following products write the Netpresenter channel files:
Netpresenter Editor
Netpresenter Message Server / Alert Server

The following players read the Netpresenter channel files:
Netpresenter Screen Saver
Netpresenter Desktop Player

Each word in a header corresponds to a keyword in the Netpresenter script language.
Keywords and parameters are separated by white space (space character or a carriage return/linefeed pair).

7.2 Channel

::=
“CHNL 1002”
[“TITLE” <quoted string>]
[“AUTHOR” <quoted string>]
[“DESCRIPTION” <quoted string>]
[“CFLAGS” <ChannelFlagValues>]
[<SlideOrChannels>]

7.2.1 ChannelFlagValues

::=
1 (0x00000001) Enable interactivity for every slide

On slides that contain clickable objects mouse moves will not cause the screen saver to close, but mouse moves on slides without clickable options will.
When setting this option, the behaviour is the same of all slides, with or without clickable objects: mouse moves do not cause the screen saver to close.

7.2.2 Quoted string

A quoted string is a string between double quotes (‘“‘).
The double quote character may be escaped using the ‘^’ symbol. A double ‘^’ character displays the ‘^’ character itself. The editor takes care of this automatically.

7.2.3 SlideOrChannels

::=
<Slide> [<SlideOrChannels>] |
<MasterSlide> [<SlideOrChannels>] |
<SubChannel> [<SlideOrChannels>]

7.2.3.1 Slide

::=
“SLIDE” <SlideName>
“BEGIN”
[“MASTERID” <MasterId>]
“ID” <SlideId>
[<Objects>]
[<SlideScheduling>]
[<OnOrMoreAdvancedSchedulingOptions>]
[“OPTIONS” <SlideOptionFlagValues>]
[“SECONDS” <DisplayTime>]
[“PRIORITY” <Priority>]
“END”

7.2.3.1.1 MasterId

::=
<SlideId>
The Master ID is the id of the masterslide will be used as a template for this slide.

7.2.3.1.2 SlideId

::=
<unsigned decimal integer>
An identifier for this slide.

7.2.3.1.3 DisplayTime

::=
<unsigned decimal integer>
Range 0 .. 300 seconds. The value 300 is used to wait until the user clicks.

7.2.3.1.4 Priority

::=
<unsigned decimal integer>
Range 0 .. 10. A value of 10 in any slide indicates that the whole channels is to be treated as an emergency channel, i.e. players configured correctly will popup any time such a channel is written.

7.2.3.1.5 SlideName

::=
<quoted string>

Name of the slide. The name will only be shown in the editor.

7.2.3.1.6 SlideScheduling

::=
“ TIME” <ScheduleHour00> <SchduleHour01> .. <ScheduleHour23>

7.2.3.1.6.1 ScheduleHourXX

::=

Schedule is configured using 24 hex blocks which represent 24 hours.
Every hex block represents an hour of the day starting with 0 (12 pm)
Every hex block is 4 hex characters which represent 16 bits for every hour.

These bits represent the following if set:

Day	Bit Number	Valid during x part of the hour	If set, valid from ..until
Sun	0	1	hh:00 - hh:29
Sun	1	2	hh:30 - hh:59
Mon	2	1	hh:00 - hh:29
Mon	3	2	hh:30 - hh:59
Tue	4	1	hh:00 - hh:29
Tue	5	2	hh:30 - hh:59
Wed	6	1	hh:00 - hh:29
Wed	7	2	hh:30 - hh:59
Thu	8	1	hh:00 - hh:29
Thu	9	2	hh:30 - hh:59
Fri	10	1	hh:00 - hh:29
Fri	11	2	hh:30 - hh:59
Sat	12	1	hh:00 - hh:29
Sat	13	2	hh:30 - hh:59

7.2.3.1.7 OnOrMoreAdvancedSchedulingOptions

::=
<AdvancedScheduling> [<OnOrMoreAdvancedSchedulingOptions>]

Scheduling options may be combined to build complex scheduling behaviour.
Note that this will rarely be used. There is no real need to add scheduling information to the channel format, since the Netpresenter Message Server published or unpublishes slides based on scheduling information of the messages to be displayed.

7.2.3.1.7.1 AdvancedScheduling

::=
“SCHEDULESTART”
[“SCH_TIMEFORMAT” <TimeFormat>]
[“SCH_PERIODSTART” <DateTime> “SCH_PERIODSTOP” <DateTime>]
[“SCH_DAILYSTART” <Time> “SCH_DAILYSTOP” <Time>]
[“SCH_DAYS_START” <ListOfDays>]
“SCHEDULEEND”

The period determined by SCH_PERIODSTART and SCH_PERIODSTOP denotes the period within which the slide or channel will be displayed. Do not use these keywords if there are no start or end dates.

SCH_DAILYSTART and denote SCH_DAILYSTOP the daily times the slide or channel will be displayed.

Do not use these keywords if the slide should be displayed all day during a certain period.

Example 1:
For a slide that should be displayed every day between September 1 2004 until (but not including) January 1 2100 from 9:55 till 11:55 UTC time.

```
SCHEDULE_START
   SCH_TIMEFORMAT  "UTC"
   SCH_PERIODSTART "2004-09-01 00:00:00"
   SCH_PERIODSTOP  "2100-01-01 00:00:00"
   SCH_DAILYSTART  "09:55:00"
   SCH_DAILYSTOP   "10:35:00"
   SCH_DAYS_START
     "AllDays"
   SCH_DAYS_END
 SCHEDULE_END
```

Example 2:
Display a slide every Monday and Wednesday from 11:45 to 12:45 local time:

```
 SCHEDULE_START
   SCH_TIMEFORMAT  "Local"
   SCH_DAILYSTART  "11:45:00"
   SCH_DAILYSTOP   "12:45:00"
   SCH_DAYS_START
     "Monday Wednesday"
   SCH_DAYS_END
 SCHEDULE_END
```

7.2.3.1.7.1.1 TimeFormat

::=
“UTC” |
“Local” (default)

Use “UTC” for example when all players at all plants of a company anywhere in the world should start playing a slide or channel at exactly the same moment.
Use “Local” when all players should start displaying a slide or channel at for example 8 AM local time.

7.2.3.1.7.1.2 DateTime

::=
<yyyy-mm-dd hh:mm>

Denotes a date and time in 24 hour format, for example:
"2004-09-01 14:00:00" for September 1, 2004 2 PM.

7.2.3.1.7.1.3 Time

::=
Denotes a time in 24 hour format, for example
“13:35:00”

7.2.3.1.7.1.4 ListOfDays

::=

"Monday"
"Tuesday"
"Wednesday"
"Thursday"
"Friday"
"Saturday"
"Sunday"

"AllDays"
"AllWorkingDays" (denotes Monday through Friday)
"AllWeekend" (Saturday and Sunday)

do not use keyword SCH_DAYS_START if the day of the week does not matter (or use it with the "AllDays" parameter).

The values can be combined. Use spaces to separate the values.

7.2.3.1.8 SlideOptionFlagValues

::=

1 (0x00000001) Hide Slide
2 (0x00000002) Alert (Red flashing border)
4 (0x00000004) Set name to text (Useful for the editor only)

Flag values only applicable for slides that are derived from a master slide:

256 (0x00000100) Slide will use master's timing
512 (0x00000200) Slide will use master's schedule
1024 (0x00000400) Slide will use master's visual effect

Slide options are reflected in the editor's slide tab.
General Note about flags: The values may be combined by adding their values.

For example the SlideOptionFlagValue "HideSlide" (value 1) and "Alert" (value 2) may be combined by assigning the value 3 to the OPTIONS parameter.

7.2.3.1.9 Objects

::=
<Object> [<Objects>]

7.2.3.1.9.1 Object

::=
["FLAGS" <ObjectFlags>]
[<BackgroundDefinition>]
[<BorderDefinition>]
[<EffectDescription>]
["BRANCH" <BranchToSpecifier>]
[<*ContentsText*>]
[<ContentsTextFromFile>]
[<ContentsImage>]
[<ContentsMultiMedia>]
[<ObjectShape>] (Implied for slide, required for objects)
["DELAY" <DelayTime>]
["ERASE" <DelayTime>]

7.2.3.1.9.1.1 DelayTime

::=
<unsigned decimal int>
Duration in seconds.

7.2.3.1.9.1.2 ObjectFlags

::=
[<TextFromFileFlags>]
[<ImageFlags>]
[<MultiMediaFlags>]
[<BranchFlags>]

7.2.3.1.9.1.2.1 TextFromFileFlags

::= <TextFromFileFlagValues> [| <TextFromFileFlagValues>]

7.2.3.1.9.1.2.1.1 TextFromFileFlagsValues

::=

```
    32  (0x00000020) Players should monitor file for updates
 65536  (0x00010000) Do not distribute object with channel

  2048  (0x00000800) Remove HTML tags
  4096  (0x00001000) Begin “Case Insensitive”
  8192  (0x00002000) End “Case Insensitive”
 16384  (0x00004000) Begin “Include String”
 32768  (0x00008000) End “Include String”
```

7.2.3.1.9.1.2.2 ImageFlags

::= <ImageFlagValues> [| <ImageFlagValues>]

7.2.3.1.9.1.2.2.1 ImageFlagValues

::=

```
    64  (0x00000040) Players should monitor file for updates
131072  (0x00020000) Do not distribute object with channel
```

7.2.3.1.9.1.2.3 MultiMediaFlags

::= <MultiMediaFlagValues> [| <MultiMediaFlagValues>]

7.2.3.1.9.1.2.3.1 MultiMediaFlagValues

::=

```
   128  (0x00000080)  Players should monitor file for updates
262144  (0x00040000)  Do not distribute object with channel
     1  (0x00000001)  Activate On Mouse Click (As opposed to “Activate On Display”, when the
                      flag is not set)
524288  (0x00080000)  Do not cache (used for streaming media)
1048576 (0x00100000)  Interpret as flash
```

7.2.3.1.9.1.2.4 BranchFlags

::= <BranchFlagValues> [| <BranchFlagValues>]

7.2.3.1.9.1.2.4.1 BranchFlagValues

::=
256 (0x00000100) Players should monitor file for updates
512 (0x00000200) Distribute object with channel (Note: opposite from ImageFlagValues, TextFromFileFlagValue, MultiMediaFlagValues)
16 (0x00000010) Close presentation after branch
1024 (0x00000400) Print document

7.2.3.1.9.1.3 ContentsText

::=
<TextAttributes> “BTEXT” <quoted string> (When used for the slide)
| <TextAttributes> “TEXT” <quoted string> (When used for a object on the slide)

(When the text is to be displayed in an object the keyword “TEXT” is used. “BTEXT” is used for text to be displayed on the slide’s background, not in one of the objects of the slide. This is because of historical reasons only)

7.2.3.1.9.1.3.1 TextAttributes

::=
"FONT" <FontTypeface> <FontHeight> "0"
[“STYLE” <StyleFlags>]
[“JUSTIFY” <HorzJustifyType> <VertJustifyType>]
[<OutlineParameters>]
[<ShadowParameters>]
[<ExtrudeParameters>]
[<TextColour>]
[“CSPACE” <CharacterSpacing>]
[“LSPACE” <LineSpacing>]
[“SEPARATOR” <separator>]
[“TEXTWRAP” <TextWrapSpecifier>]

7.2.3.1.9.1.3.1.1 FontTypeface

::= <Any available typefacename>

Examples: Arial, Courier etc.

7.2.3.1.9.1.3.1.2 FontHeight

::= <unsigned decimal integer>

7.2.3.1.9.1.3.1.3 HorzJustifyType

::=
“CENTER” (default) |
“LEFT” |

“RIGHT”

7.2.3.1.9.1.3.1.4 VertJustifyType

::=
“VCENTER” (default) |
“TOP” |
“BOTTOM”

7.2.3.1.9.1.3.1.5 OutlineParameters

::=
“ OUTLINE” <OutlineLevel>
[<OutlineColour>]

7.2.3.1.9.1.3.1.6 OutlineLevel

::=
<unsigned decimal int>

7.2.3.1.9.1.3.1.7 OutlineColour

::=
[“OPEN” <RGB>]

(In this context, OPEN is short for ‘Outline PEN’).

7.2.3.1.9.1.3.1.8 ShadowParameters

::=
“SHADOW” <XOffset> <YOffset>
[<ShadowColour>]

7.2.3.1.9.1.3.1.9 XOffset

::=
<signed decimal int>

7.2.3.1.9.1.3.1.10 YOffset

::=
<signed decimal int>

7.2.3.1.9.1.3.1.11 ShadowColour

::=
[“SPEN” <RGB>]

7.2.3.1.9.1.3.1.12 ExtrudeParameters

::=
“EXTRUDE” <XOffset> <YOoffset>
[<ExtrudeColour>]

7.2.3.1.9.1.3.1.13 ExtrudeColour

::=
[“EPEN” <RGB>]

7.2.3.1.9.1.3.1.14 TextColour

::=
[“APEN” <RGB>]

7.2.3.1.9.1.3.1.15 StyleFlags

::=

1	0x00000001	Bold
2	0x00000002	Italics
4	0x00000004	Underline
4096	0x00001000	Random Records (See manual: Words are selected randomly)

7.2.3.1.9.1.3.1.16 CharacterSpacing

::=
<unsigned decimal int>

7.2.3.1.9.1.3.1.17 LineSpacing

::=
<unsigned decimal int>

7.2.3.1.9.1.3.1.18 Separator

::=
<QuotedString>

7.2.3.1.9.1.3.1.19 TextWrapSpecifier

::=

0	No text wrapping
1	Text wraps around images with a higher Z-order

Text overlapping an image may optionally wrap around that image.
This only works if the text’s vertical justification is set to “top” and its horizontal justification to “left”.
(These are the default alignment settings).

7.2.3.1.9.1.4 ContentsTextFromFile

::=
<TextAttributes>
[“TEXTITEMS” <BeginSelectCiterium> <NrOfItemsFromBegin> <EndSelectCriterium>
<NrOfItemsFromEnd>]
“TEXTPATH“<QuotedPathname>
[“TEXTBEGIN“ <BeginText>]
[“TEXTEND“ <EndText>]

Note that the keyword TEXTITEMS often appears many items before the “ TEXTPATH” keyword.
Also see <TextFromFileFlags>

7.2.3.1.9.1.4.1 QuotedPathname

::=
<quoted text>

URL or UNC path to a file.

7.2.3.1.9.1.4.2 BeginSelectCiterium

::=
0 | (The Start)
1 | (Character)
2 | (Word)
3 (Line)

A fifth way, not explicitly mentioned here, is to use the <BeginText> to determine where to start.

7.2.3.1.9.1.4.3 NrOfItemsFromBegin

::
<unsigned decimal integer >

7.2.3.1.9.1.4.4 EndSelectCriterium

::=
0 | (The End)
1 | (Character)
2 | (Word)
3 (Line)

A fifth way, not explicitly mentioned, is to use the <EndText> to determine where to stop.

7.2.3.1.9.1.4.5 NrOfItemsFromEnd

::
<unsigned decimal integer>

7.2.3.1.9.1.4.6 BeginText

::=
<quoted string>

Overrules <BeginSelectCiterium>.

7.2.3.1.9.1.4.7 EndText

::=
<quoted string>

Overrules <EndSelectCriterium>.

7.2.3.1.9.1.5 ContentsImage

::=
“BIMAGE“ <QuotedPathname>
[“BPOS” <BPosValue>]

7.2.3.1.9.1.5.1 BPosValue

::=
0 | (Stretch (default))
1 | (Stretch (Keep aspect))
2 | (Tile)

3 (Center)

7.2.3.1.9.1.6 ContentsMultiMedia

::=
“MCIFILE” <QuotedPathname> |
[“MCIEVENT” <MciEventValues>]
[“MCITIME” <StartTime> <StopTime>]

7.2.3.1.9.1.6.1 MciEventValues

::=
0 | (No Event (Default))
1 | (Play Once)
2 | (Play and Loop)
3 | (Stop)
4 (Stop All)

Sample usage:

```
MCIFILE "airraid_alarm.wav"
MCIEVENT 2
```

To play and loop a sound.
Sounds will be played as long as it lasts while the slides are changed at their own speed (‘Play Once’) or until an explicit Stop is encountered (‘Play and Loop’).
Sounds are best attached to slides (as opposed to the objects on a slide).

```
MCIEVENT 4
```

To stop a sound

7.2.3.1.9.1.6.2 StartTime

::=
<float>

Denotes StartTime in seconds.

7.2.3.1.9.1.6.3 StopTime

::=
<float>

Denotes StopTime in seconds

7.2.3.1.9.1.7 ObjectShape

::=
<ShapeRectangle > | <ShapeEllipse> | <ShapeRoundedRectangle> | <ShapePolygon>

Note that when the object represents the slide, a rectangular shape is implied.

7.2.3.1.9.1.7.1 ShapeRectangle

::=
“RECTANGLE” [<NameOfObject>] <x0> <y0> <x1> <y1>

x0, x1
::=
<X_Coordinate>

y0, y1
::=
<Y_Coordinate>

7.2.3.1.9.1.7.1.1 X Coordinate

::=
<unsigned decimal integer>
Range: [0 .. 6400-1] logical units (1/10 pixel)
Where 0 represents the leftmost position, 6399 the rightmost position

7.2.3.1.9.1.7.1.2 Y Coordinate

::=
<unsigned decimal integer>
Range: [0 .. 4800-1]

Where 0 represents the topmost position, 4799 the lowermost position

7.2.3.1.9.1.7.1.3 NameOfObject

::=
<quoted string>

Visible in the editor only.
Object names can also contain keywords that may be used by tools that generate channel files (such as the Netpresenter Message Server).

7.2.3.1.9.1.7.2 ShapeEllipse

::=
"ELLIPSE" [<NameOfObject>] <x0> <y0> <x1> <y1>

7.2.3.1.9.1.7.3 ShapeRoundedRectangle

::=
"ROUNDRECT" [<NameOfObject>] <x0> <y0> <x1> <y1> <x2> <y2>

x0 Specifies the x-coordinate of the upper-left corner of the rectangle (in logical units).
y0 Specifies the y-coordinate of the upper-left corner of the rectangle (in logical units)
x1 Specifies the x-coordinate of the lower-right corner of the rectangle (in logical units).
y1 Specifies the y-coordinate of the lower-right corner of the rectangle (in logical units).
x2 Specifies the width of the ellipse used to draw the rounded corners (in logical units).
y2 Specifies the height of the ellipse used to draw the rounded corners (in logical units).

7.2.3.1.9.1.7.4 ShapePolygon

::=
"POLY" [<NameOfObject>] "FROM" <x0> <y0> <PolygonToDefinitions>

7.2.3.1.9.1.7.4.1 PolygonToDefinitions

::=
“TO” <x1> <y1> [<PolygonToDefinitions>]

7.2.3.1.9.1.8 BranchToSpecifier

::=
"Next Slide" |
"Previous Slide" |
"First Slide" |
"Last Slide" |
"Play" | (Continuous playing slideshow)
"Pause" | (Pauses slideshow)
"Close" | (Exists player/Screen saver)
<UrlLikeSpecifier> | <ChannelSpecifier>
<PreciseSlideTag>

Note that the URL may contain commands as well.

7.2.3.1.9.1.8.1 UrlLikeSpecifier

Most often people will use this to display a web page via a browser.
Example: http://www.netpresenter.com

7.2.3.1.9.1.8.2 ChannelSpecifier

This may be used to switch to another channel upon clicking an object.
Companies in multi lingual countries often use it to let employees switch to a channel in their native language. Example:

```
BRANCH "http://intranet/netpresenter/french.chn"
```

7.2.3.1.9.1.8.3 PreciseSlideTag

::=
“Slide ID” <SlideID>

7.2.3.1.9.1.9 BackgroundDefinition

“COLOR” <RGB> “TO” <RGB> [<ToRgbDefinitions>] “TYPE” <PatternTypeValue> “STEPS” <unsigned decimal integer>

The range for the steps value is [1 ..50] steps.
The range for the thickness value is [0..10] pixels

Note that the editor always saves a STEPS value, even when using a solid brush without a gradient.

7.2.3.1.9.1.9.1 PatternTypeValue

::=
0 Solid (Default) |
1 Vertical |
2 Horizontal |
3 Box |
4 Concentric |
5 Radial |
6 Diagonal Right |
7 Transparent |
8 Test Pattern |
9 Shaded |
10 Diagonal Left

7.2.3.1.9.1.9.2 RGB

::=
<unsigned decimal char> “ “<unsigned decimal char> “ “ <unsigned decimal char>”

For example “0 255 0” for the colour green.
The range for each value is [0 .. 255].

7.2.3.1.9.1.9.3 ToRgbDefinitions

::=
“TO“ <RGB> [<ToRgbDefinitions>]

Max 6 color transitions may be defined (defining 7 colours totally)

7.2.3.1.9.1.10 BorderDefinition

::
[<BorderColour>]
[“BORDER” <BorderStyle> “THICKNESS” <Thickness>]

Note that the current player and editor require the BORDER style definition to be positioned directly after the <BackgroundDefinition> (i.e. COLOR keyword), otherwise it will not be parsed correctly.

7.2.3.1.9.1.10.1 BorderStyle

::=
0 None (default) |
1 Solid |
2 Bevel In |
3 Bevel Out

7.2.3.1.9.1.10.2 BorderColour

::=
[“BPEN” <RGB>]

7.2.3.1.9.1.10.3 Thickness

::=
<unsigned decimal integer>

7.2.3.1.9.1.11 EffectDescription

::=
[“EFFECT” <EffectType> “MIN” <MinTransitionTime> “MAX” <MaxTransitionTime> “SIZE” <BlockSize>]

7.2.3.1.9.1.11.1 EffectType

::=
"No Effect"|
"Random"|
"Blinds, Horizontal”|
"Blinds, Vertical”|
"Checkerboard Right"|
"Checkerboard Left"|
"Checkerboard Down"|
"Checkerboard Up"|
"Expand Right"|
"Expand Left"|
"Expand Down"|
"Expand Up"|
"Expand from Top Left"|
"Expand from Top Right"|
"Expand from Bottom Left"|
"Expand from Bottom Right"|
"Expand Right and Left"|
"Expand Up and Down"|
"Expand from Center"|
"Flow Down"|
"Flow Up"|
"Flow Out, Up and Down”|
"Mirror"|
"Push Right"|
"Push Left"|
"Push Down"|
"Push Up"|
"Reveal Right"|
"Reveal Left"|
"Reveal Down"|
"Reveal Up"|
"Reveal Right and Left"|
"Reveal Up and Down"|
"Reveal Columns Left"|
"Slats, Left and Right”|
"Slats, Up and Down”|
"Slide Right"|
"Slide Left"|
"Slide Down"|
"Slide Up"|
"Slide from Right and Left"|
"Slide from Top and Bottom"|

```
"Slide Columns Right"|
"Ten Vertical Columns"|
"Two way Horizontal Bars"|
"Two way Vertical Bars"|
"Unroll Down"|
"Upside Down"|
"Wipe Right"|
"Wipe Left"|
"Wipe Down"|
"Wipe Up"|
"Wipe from Center"|
"Wipe to Center"|
"Wipe from Top Left"|
"Wipe from Top Right"|
"Wipe from Bottom Left"|
"Wipe from Bottom Right"|
"Wipe In, Right and Left”|
"Wipe In, Up and Down”|
"Wipe Out, Right and Left”|
"Wipe Out, Up and Down”|
"Wipe Out, 4 Directions”|
"Wipe In, 4 Directions”|
"Zig Zag Right"|
"Zig Zag Down"
```

Note 1: User defined transitions are also possible.

Note 2: The “Expand” effects (this includes the “random”) effect are very CPU intensive and may hog your system.
These effects should never be used on terminal server systems!

7.2.3.1.9.1.11.2 MinTransitionTime

::=
<unsigned decimal integer>

Range [0 .. 9999] (milliseconds)

7.2.3.1.9.1.11.3 MaxTransitionTime

::=
<unsigned decimal integer>

Range [0 .. 9999] (milliseconds)

7.2.3.1.9.1.11.4 BlockSize

::=
<unsigned decimal integer>

Range [1 .. 99] (pixels)

7.2.3.2 MasterSlide

"SLIDE" <quoted string>
"BEGIN"
"ID" <unsigned decimal integer>
"MASTER"
[<Objects>]
[<BackgroundDefinition>]
["BRANCH" <BranchToSpecifier>]
[<SlideScheduling>]
[<OnOrMoreAdvancedSchedulingOptions>]
["OPTIONS" <SlideOptionFlagValues>]
["SECONDS" <unsigned decimal integer>]
["PRIORITY" <unsigned decimal integer>]
"END"

Same as Slide, except for the MASTER specifier.

A master slide will not be rendered as such, but serves as a template for subsequent slides.

7.2.3.3 SubChannel

"SLIDE" <quoted string>
"BEGIN"
"ID" <unsigned decimal integer>
"SUBCHANNEL" <FullPathToChannel>
[<SlideScheduling>]
[<OnOrMoreAdvancedSchedulingOptions>]
[<BackgroundDefinition>]
["OPTIONS" <SlideOptionFlagValues>]
"END"

Much the same as Slide, except for the SUBCHANNEL specifier.
Some other options have no meaning when used in combination with a subchannel specifier (Rectangles, Ellipses etc.).
In fact, the Slide identifier is being (mis)used as a carrier for subchannels.

7.3 Sample channel files

7.3.1 Control Channel

The following channel file shows what is minimally needed to refer to 3 other channels.

```
CHNL 1002
SLIDE "Sales channel"
BEGIN
 SUBCHANNEL "\\Npser\Channels\Sales.chn"
 ID 1
END
SLIDE "CarOwners channel"
BEGIN
 SUBCHANNEL "\\Npser\Channels\CarOwners.chn"
 ID 2
END
SLIDE "Building ABC channel"
```

```
BEGIN
 SUBCHANNEL "\\Npser\Channels\BuildingABC.chn"
 ID 3
END
```

8 Netpresenter add-on modules

8.1 Introduction

Netpresenter build 153 and up support the concept of Netpresenter Add-on modules.
The first add on module available is a DLL named `NpQueueManagement.dll` which, as the name implies, implements a method to display information from a queue management system in a part of the screen.

Note that the information to be displayed should come from an external queue management system. The version currently available monitors a directory for a file that contains the data to be displayed. As soon as the external system has changed the contents of this file, Netpresenter will update the display. Other ways of integrating a queue management system with Netpresenter (serial communication, communication over sockets etc.) may be developed upon request.

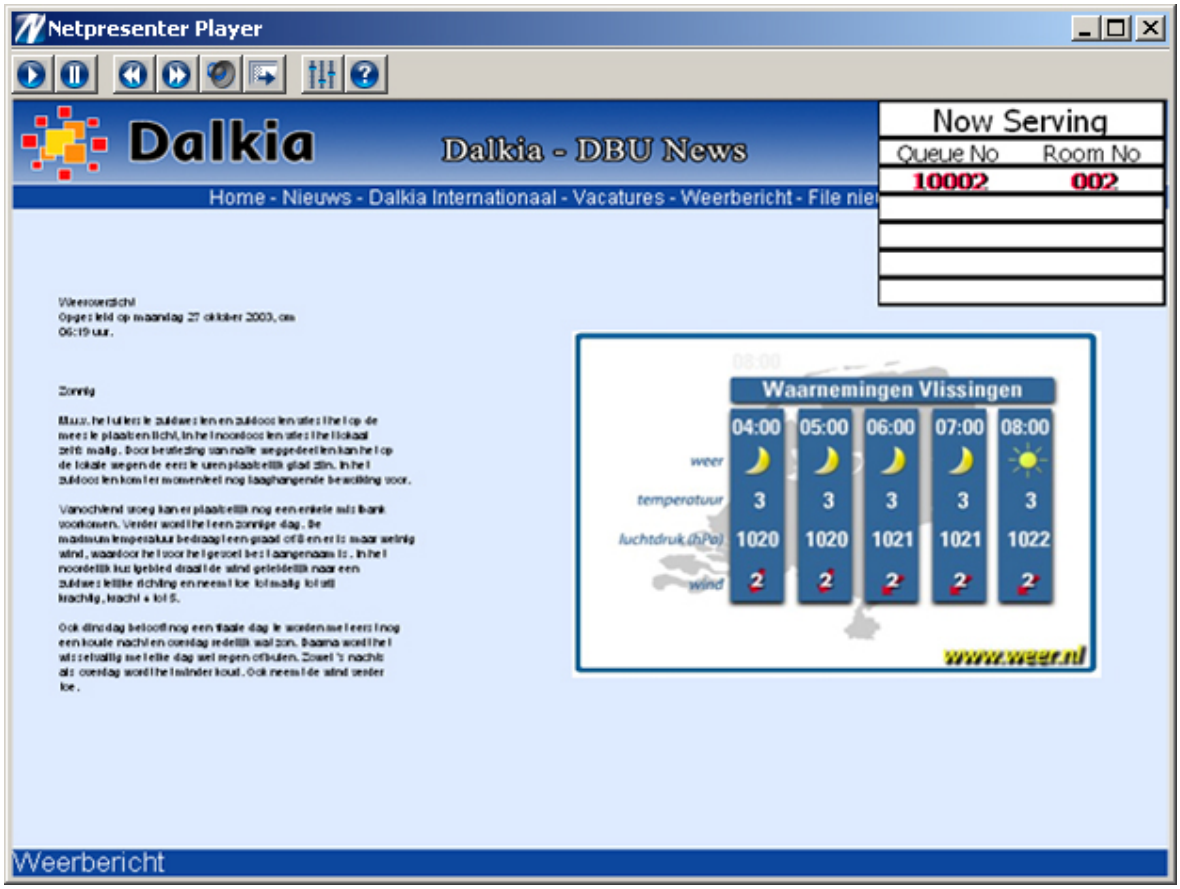
8.2 Installation Procedure

To enable Queue Management within Netpresenter, proceed as follows:

(1) Make sure Netpresenter build 153 or later has been installed
(2) Copy `NpQueueManagement.dll` and `Notify.wav` to the Netpresenter directory (most likely `c:\program files\Netpresenter`)
(3) This dll needs to be registered first: Enter `'regsvr32 "c:\program files\netpresenter\NpQueueManagement.dll"'`. Do not forget the quotes (Copy and past it into the windows "run" command preferably). You should see a message that "DllRegisterServer has succeeded".
(4) Add the following 2 lines to the `[general]` section of netpres.ini (in the Windows system directory, probably `c:\windows\netpres.ini` or `c:\winnt\netpres.ini`:

```
[General]
EnableComAddOns=1
CLSID_000=NpQueueManagement.QM
```

Now run Netpresenter as usual and verify that it displays as follows:



In this example the queue management information is being displayed in the upper right corner of the desktop player.

8.3 Tuning the Queue Management display

To satisfy customer requirements many properties of how the information should be displayed are configurable by changing entries in the file `NpQueueManagement.ini` that should reside in the same directory as `NpQueueManagement.dll`.

For a start you could past the contents of the following box into a .ini with that name (use for example notepad make or change the file).

```
[QM]
;;Use 6400 X 4800 coordinate system
X=4800
Y=0
W=1600
H=1200
FileToMonitor=c:\program files\netpresenter\monitor\qm\qm.txt
SoundFile=c:\program files\netpresenter\notify.wav
NrOfTickets=5
Separator=
DrawGrid=1
PenWidth=2
```

```
ColorBackground=255, 255, 255
Willget2Notifications=1


[Header1]
FontType=Tahoma
FontSize=0
Text=Now Serving
FontWeight=400
ColorText=0, 0, 0
ColorShadow=0, 0, 0
xShadow=0
yShadow=0
ColorOutline=0, 0, 0
Outline=0
ColorBackground=255, 255, 255

[Header2a]
FontType=Tahoma
FontSize=0
Text=Queue No
FontWeight=400
ColorText=0, 0, 0
ColorShadow=0, 0, 0
xShadow=0
yShadow=0
ColorOutline=0, 0, 0
Outline=0
ColorBackground=255, 255, 255

[Header2b]
FontType=Tahoma
FontSize=0
Text=Room No
FontWeight=400
ColorText=0, 0, 0
ColorShadow=0, 0, 0
xShadow=0
yShadow=0
ColorOutline=0, 0, 0
Outline=0
ColorBackground=255, 255, 255

[BodyTopmost]
FontType=Tahoma
FontSize=0
Text=
FontWeight=700
ColorText=255, 15, 71
ColorShadow=0, 0, 0
xShadow=2
yShadow=0
ColorOutline=0, 0, 0
Outline=0
ColorBackground=255, 255, 255

[Body]
FontType=Tahoma
FontSize=0
Text=
FontWeight=700
ColorText=0, 0, 0
ColorShadow=0, 0, 0
xShadow=0
yShadow=0
ColorOutline=0, 0, 0
Outline=0
ColorBackground=255, 255, 255
```

8.3.1 Section [QM]

The section `[QM]` determines general parameters for the Queue Management display.

The entries X, Y, W, H determine the x, y position and the width/height of the display according to the same coordinate system Netpresenter currently uses, i.e. it regards the screen as an are that is 6400 units wide and 4800 units high. By using a with of 1600 and a height of 1200 the area reserved for displaying the queue management information will occupy 1/4th of the screen's width (6400/1600) and 1/4th of the screen's height (4800/1200). By setting X to 4800 (6400 – 1600) and Y to 0, it will be positioned in the upper right corner (The origin, 0, 0 is located at the upper left corner of the screen).

`FileToMonitor`, `Separator` and `Willget2Notifications` are used to integrate with a particular queue management system. Also see the next paragraph in this document.

`NrOfTickets` determines how many lines will be displayed. The default is 5.

The file "`notify.wav`" is used to play a sound whenever the queue management display changes. Other .wav files may be used by changing the `SoundFile` entry in the `[QM]` section of `NpQueueManagement.ini`.

`DrawGrid` determines whether a grid will be drawn to separate the lines. The grid will be draw with a thickness (in pixels) as denoted in `PenWidth`.

`ColorBackground` determines the background color in R,G,B values ranging from 0 to 255.

8.3.2 Other sections

The other sections all have a similar set-up

Five independent objects have been defined, 1 for `[Header1]`, 2 for the headers at line2, 1 for the most current ticket and one for all other tickets.
Properties of the topmost line (which reads "Now Serving" in the sample above) are stored in the section `[Header1]`. The section that displays "Queue No" may be configured by changing entries in the section `[Header2a]`. Likewise, `[Header2b]` determines what and how the section now reading "Room No" should be displayed.
The 3rd line displays information desk that became available last, and may be displayed highlighted. See section `[BodyTopmost]` for how this section should be displayed. Last, the section `[Body]` determines how the remaining lines should be displayed.

Each section allows individual selection of font settings, like typeface, height, weight etc. The names should speak for themselves. A `FontWeight` of `400` represents 'NORMAL', a `FontWeight` of `700` represents 'BOLD'.

When you change the font size of `Header1`, `Header2a` and `Header2b` and leave the font size of `BodyTopmost` and `Body` equal to 0, the last 5 rows will automatically use the space that is left so you do not have to match the total number of font sizes with the height of the rectangle. I hope this gives you the flexibility needed.

8.4 Integration with a Queue Management System

The queue management module monitors a directory for a file named `qm.txt`. (See `FileToMonitor` in the `[QM]` section of the `.ini` file above).
This file should contain the ticket number and the counter number, separated by a semi-colon (`';'`) or any other character specified by `Separator` in the `.ini` file such as the space character (`' '`).
For example:

```
1003;03
```

As soon as the file denoted by `FileToMonitor` changes, its contents will be displayed in the queue management system.

The text will be displayed as entered, i.e.:
- zero's like in 001 etc. will be displayed
- It is possible to use the same ticket number and counter number multiple times (customer request)

If you notice that on your system only every 2nd ticket nr is being displayed, please set:
`Willget2Notifications=0` In the `[QM]` section of the `.ini` file used.

Please note that the `.ini` file may be saved as Unicode and that display of Unicode headers is supported.

9 Use of the Message Server

9.1 Quick overview

The message server offers the possibility to add messages to existing presentations without using the editor. This can be done from any PC with a web browser.

The message server is a web service that runs on any Webserver that supports the PHP script language (e.g. Internet Information Server or Apache Webserver).

By using a browser from any location, one can submit data to an existing template of a channel file. The template would contain a pre-formatted a default slide that contains the company logo or has been laid out to comply with the company standards.

Anyone authorized will be able to enter new data from any PC with an Internet Browser. Knowledge of the Netpresenter editor is not required.

The client PC's would typically subscribe to a channels that simply refers to the channel generated by the message server as one of the subchannels.

One simply adds a reference to the message server channel on the composed channel file. In this example below the channel `MessageServer.chn` could for example be generated by the message server.

```
CHNL 1002
SLIDE "Corporate Channel"
BEGIN
 SUBCHANNEL "http://192.168.255.20/Channels/main/main.chn"
 ID 1
END
SLIDE "Message Server"
BEGIN
 SUBCHANNEL "http://192.168.255.50/Channels/MessageServer.chn"
 ID 2
END
```

The message server should be set up so that it publishes its channel to for example `http://192.168.255.50/Channels/MessageServer.chn`.

The message server uses a master slide (template) that contains keywords at certain locations.
In the sample channel below, note the keywords between square brackets (`[subject]`, `[summary]` and `[intranet]`).
The message server replaces these keywords with the texts entered. For each new message that is added, a new slide with the same layout will be added to the channel

```
CHNL 1002
SLIDE "Unnamed"
BEGIN
 ID 1

 FONT "Arial" 25 0
 JUSTIFY LEFT VCENTER
 COLOR 0 255 255 TYPE 7 STEPS 50
 APEN 21 94 24
 RECTANGLE 1707 1488 6380 1750 TEXT "[subject]"

 FONT "Arial" 15 0
 JUSTIFY LEFT TOP
 COLOR 0 8 8 TYPE 7 STEPS 50
 RECTANGLE 1723 1804 6351 4204 TEXT "[summary]"

 FONT "Arial" 13 0
 COLOR 0 255 255 TYPE 7 STEPS 50
 BRANCH "[intranet]"
 RECTANGLE "chn_button" 153 1542 1371 1804 TEXT "[subject]"

 FONT "Arial" 50 0
 JUSTIFY CENTER VCENTER
 COLOR 21 94 24  STEPS 50
 APEN 255 255 255
 ELLIPSE "chn_bullet" 63 1565 126 1646

 FONT "Arial" 10 0
 COLOR 0 0 255 TO 0 0 0 TYPE 1 STEPS 50
 BIMAGE "C:\Program Files\Message Server\template\chn\back.jpg"
 OPTIONS 4
END
```

(For more information, see Ref. 2 “Netpresenter Message Server Installation Instructions).

9.2 Foreign language support

The message server instructs the browser to use load codepage iso-8859-1 (less formally known as Latin-1) for displaying its content. This is determined by the template pages being used. (Also see the line default_charset="iso-8859-1" under the [PHP] section in the message server’s php.ini file).
Please note that iso-8859-1 is a superset of iso 8859-1 (note the missing hyphen).

The channels being generated will be based on codepage Ansi 1252, which is the same as the Netpresenter player’s use by default (although this can be tweaked by changing the “locale” key under the [general] section of netpres.ini). Ansi 1252 displays all displayable characters from Iso-8859-1 correctly (in fact it has some displayable characters for positions in Iso-8859-1 that define non-displayable control characters in the 80-9F range).

10 Study

10.1 Introduction

Most Network operators wonder about the (lack of) network load imposed by Netpresenter and prefer to see hard evidence instead of remarks like “designed for low bandwidth” or “typically less then 50 KB per PC/day”.

This document provides hard proof of the low bandwidth nature of the Netpresenter clients. It measures the Netpresenter network replication over HTTP, FTP and SMB (SMB is the protocol used to implement windows file sharing over TCP/IP) and gives hard data which can easily be verified.

The Netpresenter thin client, low bandwidth players, feature an intelligent local cache which prevent unnecessary network traffic by discretely polling a server location. Only files which have changed are downloaded once in the local cache of the PC.

During normal operation, Netpresenter will retrieve a channel’s timestamp once every update interval. Only when a timestamp (read a file) has changed, a channel will be downloaded. Netpresenter usually only downloads the channel script file which is text based and typically 10-50 kByte large. Bitmap files that have not changed will not be downloaded again.

Netpresenter uses an elegant hypertext script language for its presentations; a presentation exists of a (script) channel file and other content (such as images and documents). This means that Netpresenter players only download what has changed, saving valuable network resources.

10.2 How did we measure the network load

We took a typical Netpresenter channel (script) which exists of 12 slides, 2 bitmaps.
To get enough samples we set the update interval very short (1 minute) and started the Netpresenter player.

We started the network sniffer at significant moments in the program, i.e. just before requesting a timestamp, or just before starting a copy file operation.
Excerpts of the original capture files have been included in this document.

10.3 SMB

Channel: \\s1\channels\Dutch Channels\schiphol\schiphol2\schiphol.chn
Operating System: Windows 2000 server SP 4

FileExist

```
    No. Time                    Source                Destination           Protocol Info
     11 2003-12-11 11:04:19.000151 192.168.255.177       192.168.255.1         SMB      NT Create AndX Request, Path: \Dutch
Channels\schiphol\schiphol2\schiphol.chn
     12 2003-12-11 11:04:19.001970 192.168.255.1         192.168.255.177       SMB      NT Create AndX Response, FID: 0x8001
     13 2003-12-11 11:04:19.004935 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_FILE_INFO, FID:
0x8001, Query File Internal Info
     14 2003-12-11 11:04:19.005248 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_FILE_INFO
     15 2003-12-11 11:04:19.006057 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels
     16 2003-12-11 11:04:19.006608 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     17 2003-12-11 11:04:19.006876 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels
     18 2003-12-11 11:04:19.007412 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     19 2003-12-11 11:04:19.007755 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol
     20 2003-12-11 11:04:19.008309 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     21 2003-12-11 11:04:19.008490 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels\schiphol
     22 2003-12-11 11:04:19.009022 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     23 2003-12-11 11:04:19.009497 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol\schiphol2
     24 2003-12-11 11:04:19.010053 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     25 2003-12-11 11:04:19.010252 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels\schiphol\schiphol2
     26 2003-12-11 11:04:19.010799 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     27 2003-12-11 11:04:19.011102 192.168.255.177       192.168.255.1         SMB      Close Request, FID: 0x8001
     28 2003-12-11 11:04:19.011389 192.168.255.1         192.168.255.177       SMB      Close Response
     29 2003-12-11 11:04:19.011570 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol\schiphol2\schiphol.chn
     30 2003-12-11 11:04:19.012141 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     31 2003-12-11 11:04:19.012371 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels\schiphol\schiphol2\schiphol.chn
     32 2003-12-11 11:04:19.012923 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     33 2003-12-11 11:04:19.013396 192.168.255.177       192.168.255.1         SMB      NT Create AndX Request, Path: \Dutch
Channels\schiphol\schiphol2\schiphol.chn
     34 2003-12-11 11:04:19.014946 192.168.255.1         192.168.255.177       SMB      NT Create AndX Response, FID: 0x8002
     35 2003-12-11 11:04:19.015328 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8002, 4096
bytes at offset 0
     36 2003-12-11 11:04:19.016183 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8002, 4096
bytes
     37 2003-12-11 11:04:19.016345 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     38 2003-12-11 11:04:19.016387 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763253103
Ack=841197417 Win=64512 Len=0
     39 2003-12-11 11:04:19.016455 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     40 2003-12-11 11:04:19.016766 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8002, 1108
bytes at offset 8192
     41 2003-12-11 11:04:19.017360 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8002, 1108
bytes
     42 2003-12-11 11:04:19.017678 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8002, 4096
bytes at offset 4096
     43 2003-12-11 11:04:19.018400 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8002, 4096
bytes
     44 2003-12-11 11:04:19.018560 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     45 2003-12-11 11:04:19.018600 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763253229
Ack=841202749 Win=64512 Len=0
     46 2003-12-11 11:04:19.018661 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     47 2003-12-11 11:04:19.024352 192.168.255.177       192.168.255.1         SMB      Close Request, FID: 0x8002
     48 2003-12-11 11:04:19.024758 192.168.255.1         192.168.255.177       SMB      Close Response
     49 2003-12-11 11:04:19.024947 192.168.255.177       192.168.255.1         SMB      NT Create AndX Request, Path: \Dutch
Channels\schiphol\schiphol2\schiphol.chn
     50 2003-12-11 11:04:19.026517 192.168.255.1         192.168.255.177       SMB      NT Create AndX Response, FID: 0x8003
     51 2003-12-11 11:04:19.197936 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763253458
Ack=841204167 Win=63094 Len=0
```

FileTime

```
    No. Time                    Source                Destination           Protocol Info
     18 2003-12-11 11:06:08.682014 192.168.255.177       192.168.255.1         SMB      Tree Connect AndX Request, Path:
\\S1\CHANNELS
     19 2003-12-11 11:06:08.682426 192.168.255.1         192.168.255.177       SMB      Tree Connect AndX Response
     20 2003-12-11 11:06:08.682729 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol\schiphol2
     21 2003-12-11 11:06:08.683421 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     22 2003-12-11 11:06:08.683793 192.168.255.177       192.168.255.1         SMB      Trans2 Request, FIND_FIRST2, Pattern:
\Dutch Channels\schiphol\schiphol2\schiphol.chn
     23 2003-12-11 11:06:08.684988 192.168.255.1         192.168.255.177       SMB      Trans2 Response, FIND_FIRST2, Files:
schiphol.chn
     24 2003-12-11 11:06:08.710472 65369.1               0.255                 ZIP      GetNetInfo request
     25 2003-12-11 11:06:08.810703 65369.1               0.255                 ZIP      GetNetInfo request
     26 2003-12-11 11:06:08.843713 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763254638
Ack=841205381 Win=63403 Len=0
     27 2003-12-11 11:06:08.910838 65369.1               0.255                 ZIP      GetNetInfo request
```

```
     28 2003-12-11 11:06:10.924018 192.168.255.178       192.168.255.255       BROWSER  Host Announcement DANCER, Workstation,
Server, NT Workstation, Potential Browser
     29 2003-12-11 11:06:14.005672 65369.1               0.255                 ZIP      GetNetInfo request
     30 2003-12-11 11:06:14.106927 65369.1               0.255                 ZIP      GetNetInfo request
```

CopyFile

```
    No. Time                       Source                Destination           Protocol Info
      1 2003-12-11 11:16:19.289005 65369.1               0.255                 ZIP      GetNetInfo request
      2 2003-12-11 11:16:19.390513 65369.1               0.255                 ZIP      GetNetInfo request
      3 2003-12-11 11:16:19.490361 65369.1               0.255                 ZIP      GetNetInfo request
      4 2003-12-11 11:16:19.582304 65369.1               0.255                 ZIP      GetNetInfo request
      5 2003-12-11 11:16:19.682484 65369.1               0.255                 ZIP      GetNetInfo request
      6 2003-12-11 11:16:22.214143 192.168.255.177       192.168.255.255       NETLOGON SAM LOGON request from client
      7 2003-12-11 11:16:22.214327 192.168.255.177       192.168.255.20        NETLOGON SAM LOGON request from client
      8 2003-12-11 11:16:22.214448 192.168.255.177       194.109.111.132       NETLOGON SAM LOGON request from client
      9 2003-12-11 11:16:22.214728 192.168.255.20        192.168.255.177       NETLOGON SAM Active Directory Response - user
unknown
     10 2003-12-11 11:16:22.314357 192.168.255.177       192.168.255.20        NETLOGON Query for PDC from PRANCER
     11 2003-12-11 11:16:22.314714 192.168.255.20        192.168.255.177       NETLOGON SAM Active Directory Response - user
unknown
     12 2003-12-11 11:16:23.034446 192.168.255.177       192.168.255.1         SMB      NT Create AndX Request, Path: \Dutch
Channels\schiphol\schiphol2\schiphol.chn
     13 2003-12-11 11:16:23.036376 192.168.255.1         192.168.255.177       SMB      NT Create AndX Response, FID: 0x8007
     14 2003-12-11 11:16:23.039459 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_FILE_INFO, FID:
0x8007, Query File Internal Info
     15 2003-12-11 11:16:23.039783 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_FILE_INFO
     16 2003-12-11 11:16:23.040591 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels
     17 2003-12-11 11:16:23.041150 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     18 2003-12-11 11:16:23.041419 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels
     19 2003-12-11 11:16:23.041961 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     20 2003-12-11 11:16:23.042310 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol
     21 2003-12-11 11:16:23.042857 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     22 2003-12-11 11:16:23.043038 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels\schiphol
     23 2003-12-11 11:16:23.043612 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     24 2003-12-11 11:16:23.043936 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol\schiphol2
     25 2003-12-11 11:16:23.044491 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     26 2003-12-11 11:16:23.044668 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels\schiphol\schiphol2
     27 2003-12-11 11:16:23.045222 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     28 2003-12-11 11:16:23.045763 192.168.255.177       192.168.255.1         SMB      Close Request, FID: 0x8007
     29 2003-12-11 11:16:23.046059 192.168.255.1         192.168.255.177       SMB      Close Response
     30 2003-12-11 11:16:23.046256 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Basic Info, Path: \Dutch Channels\schiphol\schiphol2\schiphol.chn
     31 2003-12-11 11:16:23.046826 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     32 2003-12-11 11:16:23.046996 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_PATH_INFO, Query
File Alt Name Info, Path: \Dutch Channels\schiphol\schiphol2\schiphol.chn
     33 2003-12-11 11:16:23.047546 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_PATH_INFO
     34 2003-12-11 11:16:23.047997 192.168.255.177       192.168.255.1         SMB      NT Create AndX Request, Path: \Dutch
Channels\schiphol\schiphol2\schiphol.chn
     35 2003-12-11 11:16:23.049592 192.168.255.1         192.168.255.177       SMB      NT Create AndX Response, FID: 0x8009
     36 2003-12-11 11:16:23.049973 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8009, 4096
bytes at offset 0
     37 2003-12-11 11:16:23.050830 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8009, 4096
bytes
     38 2003-12-11 11:16:23.050987 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     39 2003-12-11 11:16:23.051028 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763259244
Ack=841230601 Win=64512 Len=0
     40 2003-12-11 11:16:23.051089 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     41 2003-12-11 11:16:23.051415 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8009, 1108
bytes at offset 8192
     42 2003-12-11 11:16:23.051978 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8009, 1108
bytes
     43 2003-12-11 11:16:23.052266 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8009, 4096
bytes at offset 4096
     44 2003-12-11 11:16:23.052987 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8009, 4096
bytes
     45 2003-12-11 11:16:23.053149 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     46 2003-12-11 11:16:23.053189 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763259370
Ack=841235933 Win=64512 Len=0
     47 2003-12-11 11:16:23.053253 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     48 2003-12-11 11:16:23.059111 192.168.255.177       192.168.255.1         SMB      Close Request, FID: 0x8009
     49 2003-12-11 11:16:23.059410 192.168.255.1         192.168.255.177       SMB      Close Response
     50 2003-12-11 11:16:23.059597 192.168.255.177       192.168.255.1         SMB      NT Create AndX Request, Path: \Dutch
Channels\schiphol\schiphol2\schiphol.chn
     51 2003-12-11 11:16:23.061169 192.168.255.1         192.168.255.177       SMB      NT Create AndX Response, FID: 0x8008
     52 2003-12-11 11:16:23.061455 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_FILE_INFO, FID:
0x8008, Query File Basic Info
     53 2003-12-11 11:16:23.061754 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_FILE_INFO
     54 2003-12-11 11:16:23.067793 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_FILE_INFO, FID:
0x8008, Query File Stream Info
     55 2003-12-11 11:16:23.068168 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_FILE_INFO
     56 2003-12-11 11:16:23.068320 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_FILE_INFO, FID:
0x8008, Query File Basic Info
     57 2003-12-11 11:16:23.068612 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_FILE_INFO
     58 2003-12-11 11:16:23.075841 192.168.255.177       192.168.255.1         SMB      Trans2 Request, QUERY_FS_INFO, Query FS
Attribute Info
     59 2003-12-11 11:16:23.076150 192.168.255.1         192.168.255.177       SMB      Trans2 Response, QUERY_FS_INFO
```

```
     60 2003-12-11 11:16:23.076696 192.168.255.177       192.168.255.1         SMB      Read AndX Request, FID: 0x8008, 9300
bytes at offset 0
     61 2003-12-11 11:16:23.077566 192.168.255.1         192.168.255.177       SMB      Read AndX Response, FID: 0x8008, 9300
bytes
     62 2003-12-11 11:16:23.077724 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     63 2003-12-11 11:16:23.077767 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763259964
Ack=841240661 Win=64512 Len=0
     64 2003-12-11 11:16:23.077846 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     65 2003-12-11 11:16:23.078038 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     66 2003-12-11 11:16:23.078076 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763259964
Ack=841243581 Win=64512 Len=0
     67 2003-12-11 11:16:23.078198 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     68 2003-12-11 11:16:23.078356 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     69 2003-12-11 11:16:23.078374 192.168.255.1         192.168.255.177       NBSS     NBSS Continuation Message
     70 2003-12-11 11:16:23.078515 192.168.255.177       192.168.255.1         TCP      3446 > microsoft-ds [ACK] Seq=1763259964
Ack=841247105 Win=64512 Len=0
     71 2003-12-11 11:16:24.785341 65369.1               0.255                 ZIP      GetNetInfo request
     72 2003-12-11 11:16:24.885846 65369.1               0.255                 ZIP      GetNetInfo request
     73 2003-12-11 11:16:24.985858 65369.1               0.255                 ZIP      GetNetInfo request
     74 2003-12-11 11:16:25.086056 65369.1               0.255                 ZIP      GetNetInfo request
     75 2003-12-11 11:16:25.106455 Netronix_f3:81:ef     Broadcast             ARP      Who has 192.168.255.3?  Tell
192.168.255.1
     76 2003-12-11 11:16:25.186519 65369.1               0.255                 ZIP      GetNetInfo request
     77 2003-12-11 11:16:26.887393 00000000.00c002a95600 00000000.ffffffffffff IPX SAP  Nearest Query
```

10.4 HTTP

Channel: http://192.168.255.9/chn/Dutch Channels/schiphol/schiphol2/schiphol.chn
Operating System: Windows 2000 server SP 4
HTTP Server: Apache 2.0.48

FileTime

```
    No. Time                       Source                Destination           Protocol Info
     14 2003-12-11 15:45:35.675009 192.168.255.177       192.168.255.9         TCP      3739 > http [SYN] Seq=1714195108 Ack=0
Win=64512 Len=0
     15 2003-12-11 15:45:35.675246 192.168.255.9         192.168.255.177       TCP      http > 3739 [SYN, ACK] Seq=507025653
Ack=1714195109 Win=65535 Len=0
     16 2003-12-11 15:45:35.675309 192.168.255.177       192.168.255.9         TCP      3739 > http [ACK] Seq=1714195109
Ack=507025654 Win=64512 Len=0
     17 2003-12-11 15:45:35.675514 192.168.255.177       192.168.255.9         HTTP     HEAD
/chn/Dutch%20Channels/schiphol/schiphol2/schiphol.chn HTTP/1.1
     18 2003-12-11 15:45:35.683062 192.168.255.9         192.168.255.177       HTTP     HTTP/1.1 200 OK
     19 2003-12-11 15:45:35.683187 192.168.255.177       192.168.255.9         TCP      3739 > http [FIN, ACK] Seq=1714195298
Ack=507025914 Win=64252 Len=0
     20 2003-12-11 15:45:35.683368 192.168.255.9         192.168.255.177       TCP      http > 3739 [ACK] Seq=507025914
Ack=1714195299 Win=65346 Len=0
     21 2003-12-11 15:45:35.683637 192.168.255.9         192.168.255.177       TCP      http > 3739 [FIN, ACK] Seq=507025914
Ack=1714195299 Win=65346 Len=0
     22 2003-12-11 15:45:35.683695 192.168.255.177       192.168.255.9         TCP      3739 > http [ACK] Seq=1714195299
Ack=507025915 Win=64252 Len=0
```

The textual contents being transmitted when requesting a timestamp over HTTP is as follows:

```
HEAD /chn/dutch%20channels/schiphol/schiphol2/schiphol.chn HTTP/1.1
Accept: Accept: */*
User-Agent: Netpresenter/3.6.0
Host: 192.168.255.9
Content-Length: 0
Cache-Control: no-cache

HTTP/1.1 200 OK
Date: Tue, 02 Dec 2003 14:54:08 GMT
Server: Apache/2.0.46 (Win32)
Last-Modified: Tue, 02 Dec 2003 13:11:01 GMT
ETag: "418-2454-17076040"
Accept-Ranges: bytes
Content-Length: 9300
Content-Type: text/plain; charset=ISO-8859-1
```

FileExist

```
     No. Time                       Source                Destination           Protocol Info
     11 2003-12-11 15:48:24.076802 192.168.255.177       192.168.255.9         TCP      3741 > http [SYN] Seq=1756288761 Ack=0
Win=64512 Len=0
     12 2003-12-11 15:48:24.077011 192.168.255.9         192.168.255.177       TCP      http > 3741 [SYN, ACK] Seq=546843954
Ack=1756288762 Win=65535 Len=0
     13 2003-12-11 15:48:24.077075 192.168.255.177       192.168.255.9         TCP      3741 > http [ACK] Seq=1756288762
Ack=546843955 Win=64512 Len=0
     14 2003-12-11 15:48:24.077280 192.168.255.177       192.168.255.9         HTTP     HEAD
/chn/Dutch%20Channels/schiphol/schiphol2/schiphol.chn HTTP/1.1
     15 2003-12-11 15:48:24.085046 192.168.255.9         192.168.255.177       HTTP     HTTP/1.1 200 OK
     16 2003-12-11 15:48:24.085276 192.168.255.177       192.168.255.9         TCP      3741 > http [FIN, ACK] Seq=1756288951
Ack=546844215 Win=64252 Len=0
     17 2003-12-11 15:48:24.085457 192.168.255.9         192.168.255.177       TCP      http > 3741 [ACK] Seq=546844215
Ack=1756288952 Win=65346 Len=0
     18 2003-12-11 15:48:24.085601 192.168.255.9         192.168.255.177       TCP      http > 3741 [FIN, ACK] Seq=546844215
Ack=1756288952 Win=65346 Len=0
     19 2003-12-11 15:48:24.085666 192.168.255.177       192.168.255.9         TCP      3741 > http [ACK] Seq=1756288952
Ack=546844216 Win=64252 Len=0
```

FileTime

```
    No. Time                       Source                Destination           Protocol Info
      6 2003-12-11 15:54:32.098770 192.168.255.177       192.168.255.9         TCP      3752 > http [SYN] Seq=1848576072 Ack=0
Win=64512 Len=0
      7 2003-12-11 15:54:32.099018 192.168.255.9         192.168.255.177       TCP      http > 3752 [SYN, ACK] Seq=633722187
Ack=1848576073 Win=65535 Len=0
      8 2003-12-11 15:54:32.099079 192.168.255.177       192.168.255.9         TCP      3752 > http [ACK] Seq=1848576073
Ack=633722188 Win=64512 Len=0
      9 2003-12-11 15:54:32.099289 192.168.255.177       192.168.255.9         HTTP     HEAD
/chn/Dutch%20Channels/schiphol/schiphol2/schiphol.chn HTTP/1.1
     10 2003-12-11 15:54:32.106876 192.168.255.9         192.168.255.177       HTTP     HTTP/1.1 200 OK
     11 2003-12-11 15:54:32.106998 192.168.255.177       192.168.255.9         TCP      3752 > http [FIN, ACK] Seq=1848576262
Ack=633722448 Win=64252 Len=0
```

```
     12 2003-12-11 15:54:32.107177 192.168.255.9         192.168.255.177       TCP      http > 3752 [ACK] Seq=633722448
Ack=1848576263 Win=65346 Len=0
     13 2003-12-11 15:54:32.107443 192.168.255.9         192.168.255.177       TCP      http > 3752 [FIN, ACK] Seq=633722448
Ack=1848576263 Win=65346 Len=0
     14 2003-12-11 15:54:32.107515 192.168.255.177       192.168.255.9         TCP      3752 > http [ACK] Seq=1848576263
Ack=633722449 Win=64252 Len=0
```

CopyFile

```
    No. Time                       Source                Destination           Protocol Info
      9 2003-12-11 15:57:20.664483 192.168.255.177       192.168.255.9         TCP      3755 > http [SYN] Seq=1890751374 Ack=0
Win=64512 Len=0
     10 2003-12-11 15:57:20.664695 192.168.255.9         192.168.255.177       TCP      http > 3755 [SYN, ACK] Seq=673967105
Ack=1890751375 Win=65535 Len=0
     11 2003-12-11 15:57:20.664754 192.168.255.177       192.168.255.9         TCP      3755 > http [ACK] Seq=1890751375
Ack=673967106 Win=64512 Len=0
     12 2003-12-11 15:57:20.664962 192.168.255.177       192.168.255.9         HTTP     GET
/chn/Dutch%20Channels/schiphol/schiphol2/schiphol.chn HTTP/1.1
     13 2003-12-11 15:57:20.672968 192.168.255.9         192.168.255.177       HTTP     HTTP/1.1 200 OK
     14 2003-12-11 15:57:20.673122 192.168.255.9         192.168.255.177       HTTP     Continuation
     15 2003-12-11 15:57:20.673162 192.168.255.177       192.168.255.9         TCP      3755 > http [ACK] Seq=1890751544
Ack=673970026 Win=64512 Len=0
     16 2003-12-11 15:57:20.673759 192.168.255.9         192.168.255.177       HTTP     Continuation
     17 2003-12-11 15:57:20.673817 192.168.255.177       192.168.255.9         TCP      3755 > http [ACK] Seq=1890751544
Ack=673971486 Win=64512 Len=0
     18 2003-12-11 15:57:20.673944 192.168.255.9         192.168.255.177       HTTP     Continuation
     19 2003-12-11 15:57:20.674073 192.168.255.9         192.168.255.177       HTTP     Continuation
     20 2003-12-11 15:57:20.674112 192.168.255.177       192.168.255.9         TCP      3755 > http [ACK] Seq=1890751544
Ack=673974406 Win=64512 Len=0
     21 2003-12-11 15:57:20.674503 192.168.255.9         192.168.255.177       HTTP     Continuation
     22 2003-12-11 15:57:20.674529 192.168.255.9         192.168.255.177       HTTP     Continuation
     23 2003-12-11 15:57:20.674586 192.168.255.177       192.168.255.9         TCP      3755 > http [ACK] Seq=1890751544
Ack=673976666 Win=64512 Len=0
```

10.5 FTP

ftp://s1/Dutch Channels/schiphol/schiphol2/schiphol.chn
Windows 2000 server SP 4
FTP Server: FileZilla Server version 8.8

Connect

```
    No. Time                       Source                Destination           Protocol Info
     47 2003-12-11 16:17:43.457389 192.168.255.177       192.168.255.1         TCP      3799 > ftp [SYN] Seq=2198070889 Ack=0
Win=64512 Len=0
     48 2003-12-11 16:17:43.457600 192.168.255.1         192.168.255.177       TCP      ftp > 3799 [SYN, ACK] Seq=959220664
Ack=2198070890 Win=65535 Len=0
     49 2003-12-11 16:17:43.457667 192.168.255.177       192.168.255.1         TCP      3799 > ftp [ACK] Seq=2198070890
Ack=959220665 Win=64512 Len=0
     50 2003-12-11 16:17:43.459153 192.168.255.1         192.168.255.177       FTP      Response: 220-FileZilla Server version
8.8 final
     51 2003-12-11 16:17:43.459213 192.168.255.1         192.168.255.177       FTP      Response: 220-written by Tim Kosse
(Tim.Kosse@gmx.de)
     52 2003-12-11 16:17:43.459270 192.168.255.177       192.168.255.1         TCP      3799 > ftp [ACK] Seq=2198070890
Ack=959220750 Win=64427 Len=0
     53 2003-12-11 16:17:43.459326 192.168.255.1         192.168.255.177       FTP      Response: 220 Please visit
http://sourceforge.net/projects/filezilla/
     54 2003-12-11 16:17:43.459701 192.168.255.177       192.168.255.1         FTP      Request: USER anonymous
     55 2003-12-11 16:17:43.461027 192.168.255.1         192.168.255.177       FTP      Response: 331 Password required for
anonymous
     56 2003-12-11 16:17:43.461213 192.168.255.177       192.168.255.1         FTP      Request: PASS IEUser@
     57 2003-12-11 16:17:43.518293 192.168.255.1         192.168.255.177       FTP      Response: 230 Logged on
     58 2003-12-11 16:17:43.631459 192.168.255.177       192.168.255.1         TCP      3799 > ftp [ACK] Seq=2198070920
Ack=959220863 Win=64314 Len=0
```

GetFileTime

```
     21 2003-12-10 15:14:35.569411 192.168.255.177       192.168.255.1         FTP      Request: TYPE A
     22 2003-12-10 15:14:35.570240 192.168.255.1         192.168.255.177       FTP      Response: 200 Type set to A
     23 2003-12-10 15:14:35.570568 192.168.255.177       192.168.255.1         FTP      Request: PASV
     24 2003-12-10 15:14:35.572048 192.168.255.1         192.168.255.177       FTP      Response: 227 Entering Passive Mode
(192,168,255,1,18,31)
     25 2003-12-10 15:14:35.572319 192.168.255.177       192.168.255.1         TCP      3213 > 4639 [SYN] Seq=2239564257 Ack=0
Win=64512 Len=0
     26 2003-12-10 15:14:35.572504 192.168.255.1         192.168.255.177       TCP      4639 > 3213 [SYN, ACK] Seq=1506610277
Ack=2239564258 Win=65535 Len=0
     27 2003-12-10 15:14:35.572561 192.168.255.177       192.168.255.1         TCP      3213 > 4639 [ACK] Seq=2239564258
Ack=1506610278 Win=64512 Len=0
     28 2003-12-10 15:14:35.572704 192.168.255.177       192.168.255.1         FTP      Request: LIST "/Dutch
Channels/Schiphol/Schiphol2/Schiphol.chn"
     29 2003-12-10 15:14:35.576800 192.168.255.1         192.168.255.177       FTP      Response: 150 Connection accepted
     30 2003-12-10 15:14:35.576917 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 69 bytes
     31 2003-12-10 15:14:35.577037 192.168.255.1         192.168.255.177       TCP      4639 > 3213 [FIN, ACK] Seq=1506610347
Ack=2239564258 Win=65535 Len=0
     32 2003-12-10 15:14:35.577093 192.168.255.177       192.168.255.1         TCP      3213 > 4639 [ACK] Seq=2239564258
Ack=1506610348 Win=64443 Len=0
     33 2003-12-10 15:14:35.577264 192.168.255.1         192.168.255.177       FTP      Response: 226 Transfer OK
     34 2003-12-10 15:14:35.577295 192.168.255.177       192.168.255.1         TCP      3212 > ftp [ACK] Seq=2239485631
Ack=1506555003 Win=64204 Len=0
     35 2003-12-10 15:14:35.577383 192.168.255.177       192.168.255.1         TCP      3213 > 4639 [FIN, ACK] Seq=2239564258
Ack=1506610348 Win=64443 Len=0
     36 2003-12-10 15:14:35.577537 192.168.255.1         192.168.255.177       TCP      4639 > 3213 [ACK] Seq=1506610348
Ack=2239564259 Win=65535 Len=0
     37 2003-12-10 15:14:35.577855 192.168.255.177       192.168.255.1         TCP      3212 > ftp [FIN, ACK] Seq=2239485631
Ack=1506555003 Win=64204 Len=0
     38 2003-12-10 15:14:35.578014 192.168.255.1         192.168.255.177       TCP      ftp > 3212 [ACK] Seq=1506555003
Ack=2239485632 Win=65435 Len=0
```

FileExist

```
    No. Time                       Source                Destination           Protocol Info
      1 2003-12-11 16:25:56.005939 192.168.255.177       192.168.255.1         FTP      Request: TYPE A
      2 2003-12-11 16:25:56.006595 192.168.255.1         192.168.255.177       FTP      Response: 200 Type set to A
      3 2003-12-11 16:25:56.007013 192.168.255.177       192.168.255.1         FTP      Request: PASV
      4 2003-12-11 16:25:56.022738 192.168.255.1         192.168.255.177       FTP      Response: 227 Entering Passive Mode
(192,168,255,1,5,19)
      5 2003-12-11 16:25:56.023049 192.168.255.177       192.168.255.1         TCP      3803 > 1299 [SYN] Seq=2321004478 Ack=0
Win=64512 Len=0
      6 2003-12-11 16:25:56.023252 192.168.255.1         192.168.255.177       TCP      1299 > 3803 [SYN, ACK] Seq=1074205566
Ack=2321004479 Win=65535 Len=0
      7 2003-12-11 16:25:56.023309 192.168.255.177       192.168.255.1         TCP      3803 > 1299 [ACK] Seq=2321004479
Ack=1074205567 Win=64512 Len=0
      8 2003-12-11 16:25:56.023463 192.168.255.177       192.168.255.1         FTP      Request: LIST "/Dutch
Channels/schiphol/schiphol2/schiphol.chn"
      9 2003-12-11 16:25:56.049788 192.168.255.1         192.168.255.177       FTP      Response: 150 Connection accepted
     10 2003-12-11 16:25:56.059366 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 69 bytes
     11 2003-12-11 16:25:56.059516 192.168.255.1         192.168.255.177       TCP      1299 > 3803 [FIN, ACK] Seq=1074205636
Ack=2321004479 Win=65535 Len=0
     12 2003-12-11 16:25:56.059578 192.168.255.177       192.168.255.1         TCP      3803 > 1299 [ACK] Seq=2321004479
Ack=1074205637 Win=64443 Len=0
     13 2003-12-11 16:25:56.059704 192.168.255.1         192.168.255.177       FTP      Response: 226 Transfer OK
```

```
     14 2003-12-11 16:25:56.059741 192.168.255.177       192.168.255.1         TCP      3801 > ftp [ACK] Seq=2319125159
Ack=1072467770 Win=64096 Len=0
     15 2003-12-11 16:25:56.059857 192.168.255.177       192.168.255.1         TCP      3803 > 1299 [FIN, ACK] Seq=2321004479
Ack=1074205637 Win=64443 Len=0
     16 2003-12-11 16:25:56.060062 192.168.255.1         192.168.255.177       TCP      1299 > 3803 [ACK] Seq=1074205637
Ack=2321004480 Win=65535 Len=0
```

CopyFile

```
    No. Time                       Source                Destination           Protocol Info
      6 2003-12-11 16:29:27.868352 192.168.255.177       192.168.255.1         FTP      Request: TYPE I
      7 2003-12-11 16:29:27.868955 192.168.255.1         192.168.255.177       FTP      Response: 200 Type set to I
      8 2003-12-11 16:29:27.869483 192.168.255.177       192.168.255.1         FTP      Request: PASV
      9 2003-12-11 16:29:27.885022 192.168.255.1         192.168.255.177       FTP      Response: 227 Entering Passive Mode
(192,168,255,1,5,88)
     10 2003-12-11 16:29:27.885409 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [SYN] Seq=2374027675 Ack=0
Win=64512 Len=0
     11 2003-12-11 16:29:27.885604 192.168.255.1         192.168.255.177       TCP      1368 > 3808 [SYN, ACK] Seq=1123465893
Ack=2374027676 Win=65535 Len=0
     12 2003-12-11 16:29:27.885666 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123465894 Win=64512 Len=0
     13 2003-12-11 16:29:27.885837 192.168.255.177       192.168.255.1         FTP      Request: SIZE /Dutch
Channels/schiphol/schiphol2/schiphol.chn
     14 2003-12-11 16:29:27.895757 192.168.255.1         192.168.255.177       FTP      Response: 213 9300
     15 2003-12-11 16:29:27.896033 192.168.255.177       192.168.255.1         FTP      Request: RETR /Dutch
Channels/schiphol/schiphol2/schiphol.chn
     16 2003-12-11 16:29:27.898107 192.168.255.1         192.168.255.177       FTP      Response: 150 Connection accepted
     17 2003-12-11 16:29:27.900076 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 1460 bytes
     18 2003-12-11 16:29:27.900208 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 1460 bytes
     19 2003-12-11 16:29:27.900259 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123468814 Win=64512 Len=0
     20 2003-12-11 16:29:27.900848 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 1460 bytes
     21 2003-12-11 16:29:27.900901 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123470274 Win=64512 Len=0
     22 2003-12-11 16:29:27.900985 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 1460 bytes
     23 2003-12-11 16:29:27.901161 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 1460 bytes
     24 2003-12-11 16:29:27.901198 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123473194 Win=64512 Len=0
     25 2003-12-11 16:29:27.901320 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 892 bytes
     26 2003-12-11 16:29:27.901363 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123474086 Win=63620 Len=0
     27 2003-12-11 16:29:27.937794 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 1108 bytes
     28 2003-12-11 16:29:27.937852 192.168.255.1         192.168.255.177       TCP      1368 > 3808 [FIN, ACK] Seq=1123475194
Ack=2374027676 Win=65535 Len=0
     29 2003-12-11 16:29:27.937907 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123475195 Win=62512 Len=0
     30 2003-12-11 16:29:27.937968 192.168.255.1         192.168.255.177       FTP      Response: 226 Transfer OK
     31 2003-12-11 16:29:27.938016 192.168.255.177       192.168.255.1         TCP      3804 > ftp [ACK] Seq=2368903464
Ack=1118742245 Win=63868 Len=0
     32 2003-12-11 16:29:28.067770 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [ACK] Seq=2374027676
Ack=1123475195 Win=64512 Len=0
     33 2003-12-11 16:29:28.068981 192.168.255.177       192.168.255.1         TCP      3808 > 1368 [FIN, ACK] Seq=2374027676
Ack=1123475195 Win=64512 Len=0
     34 2003-12-11 16:29:28.069169 192.168.255.1         192.168.255.177       TCP      1368 > 3808 [ACK] Seq=1123475195
Ack=2374027677 Win=65535 Len=0
     35 2003-12-11 16:29:28.148050 192.168.255.177       192.168.255.1         FTP      Request: TYPE A
     36 2003-12-11 16:29:28.148578 192.168.255.1         192.168.255.177       FTP      Response: 200 Type set to A
     37 2003-12-11 16:29:28.148920 192.168.255.177       192.168.255.1         FTP      Request: PASV
     38 2003-12-11 16:29:28.164618 192.168.255.1         192.168.255.177       FTP      Response: 227 Entering Passive Mode
(192,168,255,1,5,89)
     39 2003-12-11 16:29:28.164968 192.168.255.177       192.168.255.1         TCP      3809 > 1369 [SYN] Seq=2374134527 Ack=0
Win=64512 Len=0
     40 2003-12-11 16:29:28.165180 192.168.255.1         192.168.255.177       TCP      1369 > 3809 [SYN, ACK] Seq=1123567504
Ack=2374134528 Win=65535 Len=0
     41 2003-12-11 16:29:28.165230 192.168.255.177       192.168.255.1         TCP      3809 > 1369 [ACK] Seq=2374134528
Ack=1123567505 Win=64512 Len=0
     42 2003-12-11 16:29:28.165370 192.168.255.177       192.168.255.1         FTP      Request: LIST "/Dutch
Channels/schiphol/schiphol2/schiphol.chn"
     43 2003-12-11 16:29:28.184004 192.168.255.1         192.168.255.177       FTP      Response: 150 Connection accepted
     44 2003-12-11 16:29:28.184117 192.168.255.1         192.168.255.177       FTP-DATA FTP Data: 69 bytes
     45 2003-12-11 16:29:28.184239 192.168.255.1         192.168.255.177       TCP      1369 > 3809 [FIN, ACK] Seq=1123567574
Ack=2374134528 Win=65535 Len=0
     46 2003-12-11 16:29:28.184313 192.168.255.177       192.168.255.1         TCP      3809 > 1369 [ACK] Seq=2374134528
Ack=1123567575 Win=64443 Len=0
     47 2003-12-11 16:29:28.184381 192.168.255.1         192.168.255.177       FTP      Response: 226 Transfer OK
     48 2003-12-11 16:29:28.184409 192.168.255.177       192.168.255.1         TCP      3804 > ftp [ACK] Seq=2368903534
Ack=1118742354 Win=63759 Len=0
     49 2003-12-11 16:29:28.184643 192.168.255.177       192.168.255.1         TCP      3809 > 1369 [FIN, ACK] Seq=2374134528
Ack=1123567575 Win=64443 Len=0
     50 2003-12-11 16:29:28.184814 192.168.255.1         192.168.255.177       TCP      1369 > 3809 [ACK] Seq=1123567575
Ack=2374134529 Win=65535 Len=0
```

10.6 Conclusion:

We have added the byte count for all network packages involved and come up with the following totals:

	Update check	*Download channel script*	*Extra per Bitmap file*
HTTP	953 Bytes	10548 Bytes	953 Bytes
FTP	2207 Bytes	13712 Bytes	1315 Bytes

SMB	894 Bytes	58089 Bytes	848 Bytes

The Column "*Update check*" lists for each protocol how many bytes are transferred to request a file time. Whenever a 9300 byte channel file has changed, the number of bytes needed to download the file and to check the timestamp of each file referred to in the channel is listed in the "*Download channel script*" and "*Extra per Bitmap File*" columns.

Note that the exact results may vary depending on:

- the web server or FTP server
- Their configuration
- The Operating System used
- The packet size configured,
- The length of the URL's used
- The size of multimedia files used
- The number of subdirectories etc.

In this test the operating system is the same for all protocols tested (W2K server) and all servers have kept their default configuration settings.
When a channel has changed, typically only textual information needs to be transferred, resulting in transfers which are typically 10 Kbytes in size, each time a channel changes (once a day?) for each client PC.

We had a hard time finding the Netpresenter update checks and downloads with our network sniffer since they were so small.

HTTP requests were extremely elegant. Less than 1Kbyte per update check!

FTP, because of the authentication needed, for polling timestamps, generates only marginally more traffic than HTTP.
An update check was limited to 2Kb per update.

SMB (Windows file sharing over TCP/IP) causes somewhat more network traffic than HTTP. But traffic was still marginal. We confirmed this by starting a simple copy operation from the command line (copy **Error! Hyperlink reference not valid.**) while a network sniffer was running.
Large differences in network traffic between SBM and HTTP may be caused by virus scanners that check a file that is being accessed via a file share before actually copying it.

Depending on the network protocol and its configuration, the Netpresenter application will need no more then 894 bytes to be transferred over a network per client per update interval. In general this will barely be measurable.

There are probably standard guidelines for reducing network traffic, like reducing server welcome strings; to not generate 8+3 filenames (SMB); Reduce number of directory levels (SMB).

11 Recommendations for Terminal Server based systems

Netpresenter also runs fine on terminal server systems like Windows 2000/2003 with Terminal Services or Citrix Metaframe.

In case of “fat client” systems (regular PCs in hybrid mode), Netpresenter is often installed locally and no special precautions have to be taken.

In case of “thin client” systems (based on for example Java, Linux or Windows CE) Netpresenter should be installed on the server. Installation on the server might differ slightly from a regular Netpresenter setup. That is what this chapter is about.

11.1 Personalize the store

Each user should get his/her personal store directory. Often the store directory can be placed on the thin client’s storage (for example a RAM drive). Or use a store directory relative to the home directory. The store directory should not simply be put in the `%temp%` directory since the screen saver expands environment variables often different from the player (due to the design of Windows).
This affects the LocalPath key in the [Screen Saver] section of the netpres.ini file, for example:

```
[Screen Saver]
LocalPath=Z:\NpStore
```

11.2 Handle personalised windows directories

Both the Screen saver and the Desktop Player expect a configuration file (netpres.ini) in the Windows directory ("%systemroot%”).
In some Terminal Server setups, users get a personalised Windows directory at for example "%userprofile%\windows” or “C:\Documents and Settings\<user name>\Windows”. The Terminal Server will copy netpres.ini to the personalised Windows directory the first time a user logs in. To keep the configuration files synchronised add the following line to the login script:

```
copy "%systemroot%\netpres.ini" "%userprofile%\windows\netpres.ini"
```

Please note that users should be granted read access to the netpres.ini file in the Windows directory. Also note that a personalised Windows directory is often not in effect for the screensaver. A screensaver’s windows directory is often the actual windows directory.

Alternatively the configuration file can be mapped to the registry.
First add a key named “netpres.ini” to “HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\IniFileMapping”. By setting default value of this key to "USR:Netpresenter\ini", references to the .ini file will be mapped to HKEY_CURRENT_USER\Software\Netpresenter\ini.

11.3 Increase slide times

The default slide time for a presentation is 5 seconds. Since each slide change causes transmission of a new screen image to the client PC you may want to increase the slide time to for example 30 seconds.

11.4 Use templates

Terminal Server optimize the size of screen updates by only sending the difference between 2 subsequent screens. By using templates (as is standard when using the Netpresenter Message Server) the differences are kept to a minimum, thus allowing the Terminal Server to optimize its network usage.

11.5 Optimize bitmap sizes

Match the size of the background images you use to the screen resolution of your thin clients. Background images that are larger needlessly decrease the Terminal Server's performance.

Also consider the use of .bmp instead of .jpg. Image files with the extension .jpg are compressed and need to be decompressed, at the cost of extra CPU time. Also memory usage tends to be less when .bmp files are used.

11.6 Avoid CPU intensive effects

Effects, like any animation, consume precious bandwidth, and are thus best avoided in Terminal Server environments.

If you do want to use effects, chose relatively simple ones. Don't use the following "Expand" effects, since these are relatively CPU intensive:

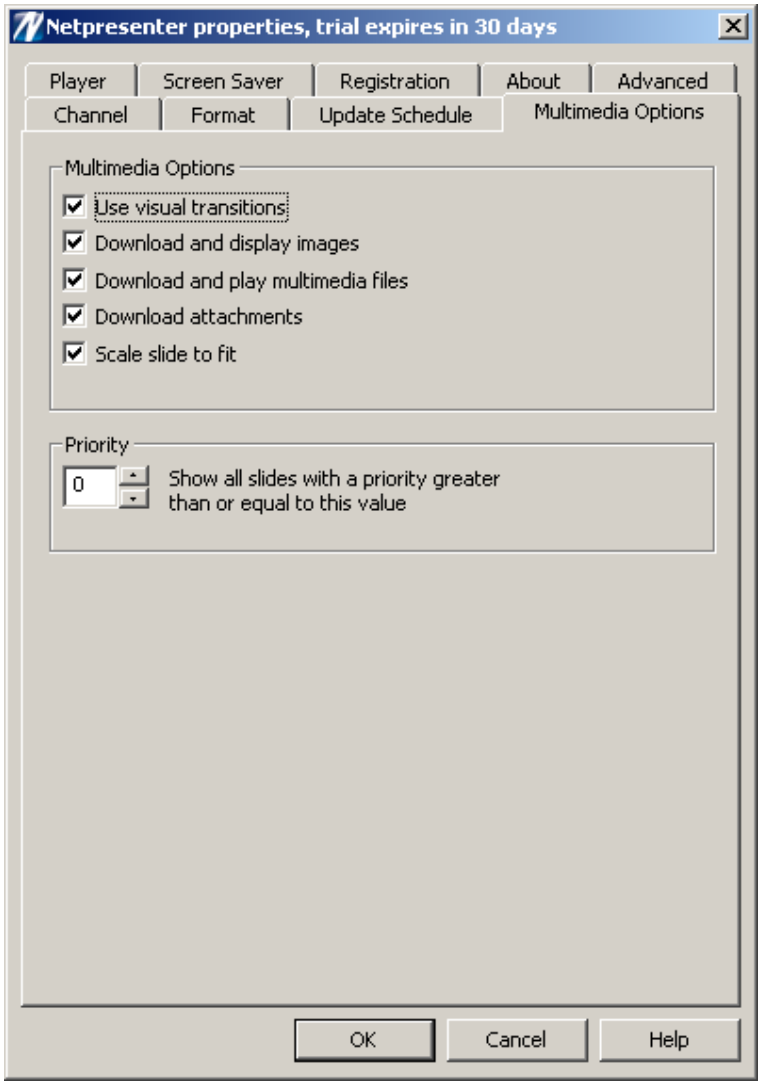
```
"Expand Right"
"Expand Left"
"Expand Down"
"Expand Up"
"Expand from Top Left"
"Expand from Top Right"
"Expand from Bottom Left"
"Expand from Bottom Right"
"Expand Right and Left"
"Expand Up and Down"
"Expand from Center"
```

The following "Flow" effects, though not CPU-intensive on stand-alone systems, increase CPU load on Terminal Server systems, because of the relatively large differences in subsequent frames:

```
"Flow Down"
"Flow Up"
"Flow Out, Up and Down"
```

Also avoid the "random" effects, since this might invoke expand or flow effects.

It is also possible to configure the Player to ignore effects used in presentations. Uncheck the "Use visual transitions" checkbox in "Multimedia Options" tab of the player's properties.



This has the same effect as setting bit 5 in the bitfield named PlayOptions in the [Player] section of netpres.ini, for example:

```
[Player]
PlayOptions=528
```

(Also see the section on PlayOptions on page 22).

11.7 Lowering the priority

Netpresenter does not load your system any more then any other application that changes the screen regularly (web browser, PowerPoint, etc.).
To reduce CPU load even more, it is possible to lower the Screen Saver's priority by adding the following key to netpres.ini:

```
[SaverOptions]
SchedulingPriority=16384
```

This is a windows defined value (actually a bit field) representing a priority 'below normal'.

The default value (‘normal priority’) is represented by a value of 32. Other values are possible but not recommended.
Note that lowering the priority may affect the quality of the presentation.