



DUNE
HD Network

The DUNE logo consists of a blue circular icon with three horizontal white lines, followed by the word 'DUNE' in a large, blue, sans-serif font. Below 'DUNE' is the text 'HD Network' in a slightly smaller, blue, sans-serif font.

A Digital Signage Solution

User Guide

Revision 0.0



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Introduction

Thank you for your interest in Dune HD Network — a flexible and powerful Full HD Digital Signage solution, which allows automated demonstration of a wide range of HD video materials (up to 1080P, including H.264) on monitors, television sets, etc.

The solution includes support for scrolling text and graphic logos over video, which is typically required in public places for commercial and announcements.

System Components

- **Presenter** — an HD video playback device (player).
 - Is connected to a **display** (TV, monitor, etc.) or a number of displays via HDMI splitter(s).
 - Contains a **hard drive** with video clips, scrolling text, graphic logos and the playlist.
 - May be connected to a **network** (LAN). This makes the HDD available via FTP to update the playlist.
- **Control Center** — a PC application to control the Presenters on a network.
 - Offers to edit the **playlist**, download video clips to a Presenter.
 - Allows to view/change the **configuration** of a Presenter.
 - Shows the status of a Presenter, allows to **restart** it, etc.
 - Works on any platform — Windows®, MacOS®, Linux, etc. (based on the Java™ technology).

A typical installation of Dune HD Network consists of a number of video playback devices, each connected to a display (or a series of displays via HDMI splitters), and optionally to a Local Area Network (LAN). Such playback devices are called Presenters in the scope of Dune HD Network.

Most of the HD video players manufactured under the Dune® brand are capable of working as Presenters — the firmware of the players has a special Digital Signage mode.

Note: The Digital Signage mode of a player is an optionally licensed functionality. It is available only if the player license includes “HDNetwork” option; this can be checked in the player menu [Setup](#) > [Information](#). If the

“HDNetwork” option is purchased, all the basic player functionality remains available.

Each Presenter plays video files which are located on its local storage — a built-in HDD or a connected USB drive. The configuration of a Presenter (the playlist, scrolling text and other options) is also stored there.

If the Presenters are connected to a LAN, they may be configured to show the same sequence of video clips synchronously. Also, the Control Center application is offered to remotely control them from a PC connected to the same LAN — transfer video files, edit configuration, restart Presenters, etc.

The Dune® brand is constantly improving its products, and may provide firmware updates, which may extend the capabilities of Dune HD Network.

Capabilities

- Playing the programmed sequence of video clips and static images.
- Support for Full HD 1080P (1920×1080 Progressive) playback.
- Support for most advanced video codecs (including H.264).
- Showing text messages in the form of a scrolling text line over the video.
- Showing graphic logos over the video clips and/or static images.
- Possibility to automatically enter the Digital Signage mode after power on.
- Working using a defined schedule.
 - Using different configurations (playlists) in different time intervals.
 - Turning the Presenter on and off according to the schedule.
 - Flexible capabilities of schedule configuration (including the possibility to specify an individual schedule for each day of week).
- Possibility for multiple Presenters in the same network to display video clips synchronously.
- Configuring all parameters via a locally stored configuration file which is available on the network for reading and writing via the FTP protocol.
- Control Center PC application for centralized remote control of the Presenters on a network.
 - Support for controlling multiple players and groups of players.
 - Convenient user interface for players configuration.

Note: In future versions of the firmware, the capabilities may be changed or extended.

Supported Media Formats

In the Digital Signage mode, the following file formats and codecs are supported:

- Video files: TS, M2TS, MPG, VOB, AVI, MOV, MP4, QT, ASF, WMV.
- Video codecs: MPEG-2, MPEG-4, DivX, Xvid, WMV9, VC1, H.264.
- Audio codecs: AC3 (DD), EAC3 (DD+), DTS, MPEG 1 layer 1/2/3, AAC, LPCM, WMA, WMAPro.
- Image files: JPEG, PNG, BMP.

Notes:

1. Some variations of these file formats are not supported.
2. In some hardware models, DTS decoding is not supported.
3. The set of supported file formats may differ from the one of the basic player mode. In particular, the MKV format is not supported in the Digital Signage mode.
4. In future versions of the firmware, more media formats may be supported.

Automated Playback

When a Presenter enters the Digital Signage mode, it starts performing the automated playback according to its configuration which is stored in the configuration file on the local HDD. The configuration, among other options, defines a playlist and optionally a schedule which may assign different configurations for different time periods.

Playback Routine

The automated playback in the Digital Signage mode involves three independent displaying activities which work in parallel:

- Playlist playback — video clips and/or static images.
- Scrolling text — running text line over the video.
- Graphic logos — images shown over the video one after another for a specified time periods.

Each of these activities is performed according to its own configuration options or not performed at all (if demanded by a configuration).

Playlist Playback

Playlist consists of a number of video clips and/or static images. The items on a playlist are shown sequentially, and the playlist is cycled — after the last item is shown, the playback continues with the first one.

Note: Please do not confuse the static images shown on a playlist with graphic logos — the latter are shown by a completely different mechanism.

Each video clip is shown to its end, unless some IR remote control buttons are used.

All static images on a playlist are shown either for a fixed period of time or for an unlimited time, according to the respective configuration option. In case of unlimited time, the playlist item may be changed manually with an IR remote (if the buttons are not locked), or when the schedule demands configuration change.

Note: In case the synchronized playback for multiple devices is configured (see a dedicated section of this manual), a black screen may be shown at the beginning of each clip for a necessary time period.

Scrolling Text

The configuration of scrolling text specifies a list of messages and a number of options.

The messages from the list are concatenated to form a single text (possibly long). It may be configured to insert an arbitrary separator between messages. This text is shown in a form of a scrolling text line. The location and colors of the text line are defined by configuration options.

The text is shown in a cycle. The configuration defines one of the two ways to loop the message list:

- Presenter waits for the end of the last message to scroll out of the screen, then after the specified number of seconds the first message appears.
- The first message of the text is shown concatenated to the last one (using the separator if configured).

Graphic Logos

The configuration allows to specify one or two graphic logos. The logos are shown one after another in a cycle as follows.

1. Show the first logo for the specified period.
2. Hide the first logo and wait for the specified period.
3. If only one logo is defined, go to step 1.
4. Show the second logo for the specified period.
5. Hide the second logo and wait for the specified period.
6. Go to step 1.

Note: When a Presenter enters the Digital Signage mode, the logo cycle is not guaranteed to start from the step 1. It may start at any time point inside the cycle, even not necessarily from the beginning of some step.

The screen location for each logo may be configured, and some randomization of the placement is supported which may be helpful to prevent screen wearing for certain display types.

Attention: It is the responsibility of the configuration author to assure that the graphic logos will never intersect with the scrolling text line. Otherwise, visual artefacts may occur.

Updating Configuration File

The configuration file may be updated any time via FTP (as the Control Center application does) and SMB. However, it is reread by the Presenter only on certain moments described below, and different groups of options are put into effect at different moments.

Message list (scrolling text) and graphic logos changes, including switching to a new configuration according to schedule, and related options, are put into effect when the last message of the list is shown and scrolls out of the screen.

Other options, including video playlist changes and its switching to a new configuration and going on/off according to schedule, come into effect after the current video clip finishes. If the current position in the playlist is a static image, these settings come into effect immediately, without waiting for the configured image delay time.

Synchronized Playback

By default, each Presenter plays the video clips and/or static images independently from other Presenters. However, if the configuration specifies the synchronized playback mode, then before starting to play next clip/image, all devices which belong to the same group (see below) will wait until the last device finishes showing the previous clip/image.

If the wait period exceeds the value specified in the configuration, a technical information about the synchronization mode will appear on screens.

Note: The synchronization does not influence scrolling text and graphic logos — these activities are independent from the playlist playback and are not synchronized.

To assign a certain group to a Presenter, the group name should be specified in the Presenter's configuration. All Presenters which have the same group name are considered to be members of that group. Presenters which have an empty group name are considered to belong to the same group with an empty name.

Attention: All devices in the same group should have identical synchronization settings, schedule, playlist, and contents of files on the playlist. It is recommended that all devices have identical configuration files. For convenience, the Control Center application allows to save the configuration to all devices in a group, see corresponding section in this manual.

The changes of the synchronization options take effect only on entering the Digital Signage mode. After any changes of the synchronized devices configuration, it is recommended to simultaneously restart them using the corresponding remote command, e.g. choosing [Restart Selected Devices](#) task in the Control Center application for all Presenters in a group.

There are two modes of synchronization — server-based (recommended) and serverless (special).

Server-Based Mode (Recommended)

In the server-based mode, one of the Presenters in each group is configured to act as a server, and all other Presenters of that group are made aware of its IP address.

During the first synchronization phase (before playing the first item in the playlist), the server waits for the specified period of time for other Presenters to announce their presence. During the subsequent phases it waits until all the devices discovered at the first phase are reported to be ready.

If a Presenter does not respond on some non-first phase for the configured period of time, it is temporary excluded till the next synchronization phase, and other devices start the phase synchronously. Thus, temporary loss of network or power by some devices does not lead to the broken synchronization.

Serverless Mode (Special)

In the serverless mode, during each synchronization phase (before playing next item in a playlist) each Presenter in a group waits for all other Presenters in that group to report being ready for playback.

This is achieved by broadcasting the synchronization messages to all devices that are connected to a single network. Thus, this mode is more liable to the LAN quality and loading level.

Note: This mode has some limitations and should not be preferred to the recommended server-based mode unless there are special reasons.

In this mode it is important to specify in the configuration the exact number of devices in the group.

In case some device turns off, stops responding or loses the network, all other devices in the group will wait until the device is back on, but after that the lost-and-found device will continue playback from its playlist position, and other devices — from their positions, thus, the manual restarting of all devices in the group should be performed.

Attention: In the serverless mode, the playback on schedule is not supported, so all Presenters should have the default schedule (“use the basic configuration all the time”).

Synchronization Accuracy

It should be noted that the synchronization function does not guarantee the frame-accurate precision.

In particular, if different video modes are set on the devices, it may happen that devices having 50 Hz video modes do the speed-up by 1/25 of a second for playback of video clips containing 24 frames per second. This does not take place with e.g. the 60 Hz video modes.

Also the synchronization accuracy may depend on both the LAN quality and the loading level, as well as the particular video file specifics.

Playback on Schedule

The “Dune HD Network” system supports performing on a weekly schedule.

To configure playback on schedule, a number of named configurations should be defined. A named configuration defines options for playlist playback, scrolling text and graphic logos.

There always exists a named configuration with an empty name, which is called the basic configuration. When the schedule is not explicitly configured, the default schedule is used which puts the basic configuration in effect.

The schedule itself is technically a list of time intervals within a week, defined with a minute accuracy, and for each interval a name of a configuration to use is specified. The schedule is week-based, that is, every week the behaviour repeats.

If a time period is not mentioned in the schedule, it is considered that the Presenter should stay off for that period.

Attention: The “off” state requested by the schedule is a special mode of a player when the display is turned off, but the player software continues working in order to be able to switch to a new configuration on a schedule, and to accept a configuration file update as well as IR remote control button presses (if not locked). So, technically this mode is not equivalent to the usual “Standby” mode. This also means that if a Presenter is put to the “Standby” mode, it will not wake up on a schedule until turned on manually.

The three independent activities — playlist playback, scrolling text and showing graphic logos — follow the schedule independently, and check the necessity to switch to another configuration at the same moments as the configuration file update (see the corresponding section of this manual).

The request to stay “off” is processed in the scope of a playlist playback activity. Other activities just show nothing after the “off” state has been demanded, so if the “off” moment occurs and the current clip is still playing, it will continue playing to its end while the scrolling text and graphic logos may already have disappeared.

Note: Thus, it is a possible situation that at some moment e.g. the playlist of a new configuration is being played, and the scrolling text from the previous configuration is still being shown.

Real-Time Clock

The schedule feature requires that a Presenter has correct real-time clock setting. If the player hardware model does not support hardware real-time clock with a backup battery, the player may be configured to set the clock automatically on every power-on by contacting a time server via the NTP protocol.

The player menu [Setup](#) > [Miscellaneous](#) > [Time Synchronization](#) allows to configure the address of an NTP time server and related options. If the Presenter’s LAN is connected to the Internet, a free public time server may be used, e.g. the popular “pool.ntp.org”.

In the absence of the Internet connection, using a time server software on one of the PCs connected to the same LAN may be recommended, e.g.:

- Windows 2003 has a built-in Time Service which supports the NTP protocol. Please refer to Microsoft Windows documentation for details, e.g. <http://technet.microsoft.com/en-us/library/cc773013.aspx>.
- For other Microsoft Windows versions, the free NTP server from <http://www.meinberg.de> may be installed.

Please refer to the player manual for details.

Usage

Turning On and Off

There are two ways to enter the Digital Signage mode. One is to use the player menu: select the “Digital Signage” top-level item. The other is to configure a Presenter to automatically enter the Digital Signage mode on power on and restart, including return from the “Standby” mode. In either case, when the mode is entered, the playback according to the playlist and the schedule starts immediately.

Note: The [Setup > Applications > Digital Signage > Enabled](#) option allows to show and hide the [Digital Signage](#) top-level menu item.

To configure the Digital Signage mode automatic start, go to the player [Setup > Applications > Digital Signage](#) and set the [Automatic start](#) option.

In the Digital Signage mode, the device power may be turned off at any moment.

Using IR Remote

An infrared remote control typically comes with Dune HD players. During the playback in the Digital Signage mode, it may be used to control the playback, and to exit the Digital Signage mode to the player menu.

Note: If several Presenter devices are installed close to each other, please take special care to insure that the IR signal of the remote control is received by a proper device. Covering an IR receiver of other devices by a piece of carton or the like may help.

Available Buttons

MUTE Turn the sound on/off.

This setting is reset upon switch to the next clip or Presenter restart.

V+, **P+** Increase the volume.

This setting is reset upon switch to the next clip or Presenter restart.

V-, **P-** Decrease the volume.

This setting is reset upon switch to the next clip or Presenter restart.

1...9 Switch to the clip with this number.

Provides access only to the first 10 clips of the playlist.

▲ UP Switch to the first clip in the playlist.

▼ DOWN Switch to the last clip in the playlist.

◀ LEFT, ⏮ PREV Switch to the previous clip in the playlist.

▶ RIGHT, ⏭ NEXT Switch to the next clip in the playlist.

⏸ PAUSE / ▶ STEP Pause the playback. Repeated presses — step one frame.

When on pause, press ▶ PLAY to continue the playback.

▶ PLAY In the pause mode, continues the playback. In the fast/slow playback mode, returns to the normal speed.

⏮ REW Decrease the playback speed.

Press ▶ PLAY to return to the normal speed.

⏭ FWD Increase the playback speed.

Press ▶ PLAY to return to the normal speed.

ZOOM Stretch (enlarge) the image. Each press sets the zoom factor from the list:

100%, 105%, 111%, 118%, 126%, 134%, 144%, 156%, 170%.

This setting is kept on switch to the next clip, but is reset upon Presenter restart.

■ STOP Exit the Digital Signage mode to the player menu.

POWER Enter the “Standby” mode.

Please refer to the player manual for details on the “Standby” mode.

Button Lock

In the Digital Signage mode there is a setting (defined in the configuration) which allows to block the remote control buttons, including the POWER button.

Note: The usual value of this setting is “on”, so it is likely that in your sample configuration the remote control buttons are locked.

When the remote control is locked, it is possible to exit the Digital Signage mode to the player menu by typing a special sequence of buttons which is also configured in the settings. Initially this sequence is 7 8 6 7 7 8 6 7 (these buttons carry letters “stopstop”). When this sequence is typed in, the remote control lock will be turned off for the player menu, until the next time you enter the Digital Signage mode.

The button lock function is useful to prevent accidental interruption of the playback, especially when Presenters are used near some other Dune HD players, e.g. in a store.

Note: If the synchronized playback mode is turned on in the configuration, the button lock works as usual, but if the button lock is turned off, only the ■STOP and POWER buttons work.

Configuration

The Digital Signage mode works according to the configuration which is defined by the following:

- Some settings in the player Setup menu.

To edit these settings, you should use the IR remote control with the Presenter.

- Configuration file "HDNETWORK/config.txt" on the Presenter's HDD.

This file may be accessed by FTP/SMB. The Control Center application reads/changes this file via FTP to allow the user to view/edit Presenter settings.

If you need to work with the configuration file directly, not using the Control Center application, please refer to the dedicated section of this manual.

Player Setup

The player menu Setup > Applications > Digital Signage allows to configure the following options:

- **Enabled:** Yes/No

If set to "No", the player menu top-level item Digital Signage is not shown, and the automatic start of the Digital Signage mode is not performed regardless of the Automatic start setting.

- **Automatic start:** Yes/No

If set to "Yes", the Presenter will automatically enter the Digital Signage mode on power on, restart and return from the "Standby" mode.

The automatic start is not performed if the "HDNETWORK" top-level folder is missing on the Presenter's HDD.

- **On failure:** Stop player/Switch to player menu

In case the Presenter encounters a fatal error during the Digital Signage mode (e.g. an internal error or a hardware problem like HDD failure), it either returns to the player menu or enters a special "Stop" mode showing the black screen until the power is turned off.

In addition to the [Setup](#) > [Applications](#) > [Digital Signage](#) settings, the following settings (and only them) from the player [Setup](#) menu influence the Digital Signage mode:

- [Setup](#) > [Video](#)
- [Setup](#) > [Audio](#)
- [Setup](#) > [Network](#)
- [Setup](#) > [Miscellaneous](#) > [Encodings](#) >
 - Ext2/Ext3 encoding
 - NFS encoding
 - FTP server encoding
- [Setup](#) > [Miscellaneous](#) > [Time Synchronization](#)
- [Setup](#) > [Miscellaneous](#) > [Advanced](#) > [Remote control type](#)

Please refer to the player manual for details on these settings.

Local HDD Contents

The internal HDD of a Presenter is expected to have a top-level folder "HDNETWORK". The contents of an HDD outside this folder does not influence the Digital Signage mode.

Note: If the folder is not present, the Control Center application will not be able to recognize a device as a Presenter. Also, the automatic start of the Digital Signage mode will not be performed even if such option is set.

The "HDNETWORK" folder contains the following files and folders:

- clips

Folder containing video clips and static images which may be added to a playlist. May contain items not included into any playlist. Subfolders are ignored.

- logos

Folder containing image files for logos to show over the video. Images should be in the ".aai" format (see the corresponding section of this manual). May contain other items and subfolders which are ignored.

Note: Please do not confuse static images (which are included into the playlist the same way as video clips) and logos (which are shown over the video and/or static images).

- `config.txt`

The configuration file which defines the playlist and other options (see below).

Note: If this file is missing, it will be created by the Control Center application.

Local HDD Access

Each Presenter device has a local HDD, either internal or, when it is absent or the device does not support it, a USB-connected one.

The contents of this hard drive may be accessed without having to disassemble the Presenter device. The following means are provided:

- Via the player menu (Navigator).
- Via FTP.
- Via SMB (Windows file sharing).
- Directly, using an HDD rack (for some hardware models).
- Via USB, as USB Slave (for some hardware models).

Player Menu (Navigator)

A Presenter device remains a fully functional HD player, so it is possible to exit the Digital Signage mode and thus get to the player menu (the regular player mode). It provides a powerful file/folder manager (called Navigator) with network support.

The Navigator allows to create, delete, rename, move and copy folders and files on a connected HDD and on a network.

Please refer to the Dune HD player manual for the detailed instructions on how to use the Navigator.

FTP/SMB

Each Presenter can serve as a Network Attached Storage (NAS) device. Other computers/devices in the local network can access the HDD of the Presenter.

Both FTP and SMB (Windows file sharing) protocols are supported — a Presenter has built-in FTP and SMB servers. In order to access a Presenter using one of these protocols, you need to know the IP address of the device (it can be found in the

player menu [Setup > Information](#)), in examples below it is substituted with “#.#.#”.

To access a Presenter’s HDD via FTP in Windows, type “ftp://#.#.#” into the address bar of any opened folder. Of course, you may also use any other FTP client of your choice.

To access a Presenter via SMB, open “\\#.#.#\internal_hard_disk” in Windows Explorer, e.g. using “Start” menu, “Run” command, or the address bar of any opened folder.

Notes:

1. The usage of specialized FTP clients (such as FileZilla) is recommended for better performance.
2. FTP access typically provides better performance for file transfer than SMB, especially when a specialized FTP client software is used.
3. Accessing a Presenter via the network during the playback may result in some video jerking or stuttering, especially when a high-bitrate video is playing.

HDD Rack

Some hardware models are equipped with a mobile HDD rack which allows to quickly remove/change the internal hard drive. The rack with the hard drive may be inserted into a compatible rack part in a PC, or the HDD may be removed from the rack

Attention: On some player models, inserting and ejecting of the HDD rack may be performed only when the power is off (e.g. “Dune HD Mini”), while some other models allow hot-swap operation (e.g. “Dune HD Center”). Please refer to the appropriate player manual.

USB Slave

Some Dune HD player models, e.g. “Dune HD Mini”, have the USB Slave function, which allows to use the player as a USB container for its internal HDD.

For example, you can attach a player to a computer via USB, and copy files from the computer to the internal HDD of the player. This is the fastest method of transferring files between a computer and a player.

To use the USB Slave function, perform the following steps:

7. Switch the Presenter device off (disconnect the power completely).
8. Connect the USB Slave port of the Presenter to a USB port of a computer.
9. Switch the Presenter on. The computer will recognize it as a USB disk in a few seconds.
10. After you have finished working with the Presenter files, switch it off again (disconnect the power completely) and disconnect it from the computer.

Preparing Logos

Logo files should be stored in the "HDNETWORK\logos" folder of the Presenter's HDD, and those files should be in the special Dune-proprietary ".aai" format.

To prepare logo files, at first a raster image should be created using any graphics editor. Then it should be converted into the ".aai" format using the provided application "AAImageGen".

Usage of AAImageGen

The "AAImageGen" converter application is shipped with the Control Center application and is located in the same folder. It is a Windows executable file. This application may be activated in the following three ways:

- Drag-n-drop

Drop the source image file onto the icon or a shortcut to the converter executable file ("AAImageGen.exe"). Then, next to the source image file, a generated file will appear having the same name but a different extension.

- Manually

Just start the application. It provides a possibility to open an image file and shows a preview on a blue background which allows to check that the transparency was captured properly.

- Command-line

Specify the name of the source file and optionally the name of the target file. If the target file name is omitted, the file will be created next to the source file and will have the same name but a different extension.

The converter accepts files in many popular formats — BMP, PNG, JPG, PSD and others. It also allows to perform backwards conversion — an ".aai" file may be converted to a ".bmp".

Preparing Logo File

If the transparency is not needed, a single-layer True Color (24 bits per pixel) image file is enough, e.g. PNG, BMP, JPG or PSD.

However, there is a possibility to use transparency, moreover, a complete alpha channel support is provided, that is, for each pixel its transparency level may be specified, and not only the fact of a transparency.

If, for example, Adobe® Photoshop® is used, an image in RGB mode should be created, the "Alpha" channel should be added in the [Channels](#) tab, and the required transparency should be expressed in that channel. Then it should be checked that the image has only one layer, and this layer is the "background"; otherwise, the correct behaviour of the converter is not guaranteed.

To test the conversion result, the ".aai" file may be dropped onto the converter icon, and it will be converted to a ".bmp".

Attention: Because of an error in Adobe Photoshop versions up to and including the CS2 (newer versions were not checked), BMP files with alpha channel (32 bits per pixel) are saved incorrectly for some image sizes (e.g. 64×64). Therefore it is recommended to use the native PSD format instead of BMP when working with Photoshop.

Control Center

The "Dune HD Network" system comes with a PC application called Control Center, which is able to control a number of Presenter devices on a network.

This is a cross-platform software based on the Java technology, so it will run on Windows, Linux, MacOS and other operating systems which support Java. The examples provided in this manual, including the screen shots, refer to Microsoft Windows XP.

The Control Center provides a possibility to edit the playlist, download video clips to a Presenter, view/change the configuration of a Presenter, view it's status, restart it, etc.

Installation

To install the application on any computer which runs Microsoft Windows operating system, it should be checked that the computer has the Java environment of version 1.6 or higher installed (e.g. "jre-6u11-windows-i586-p" for Windows). The Java environment may be downloaded from the Java developer's web site at <http://java.sun.com/javase/downloads/>.

When a computer has the Java environment installed, it is enough to copy the "DuneHDNetwork" folder to the hard drive, e.g. into the "Program Files" folder.

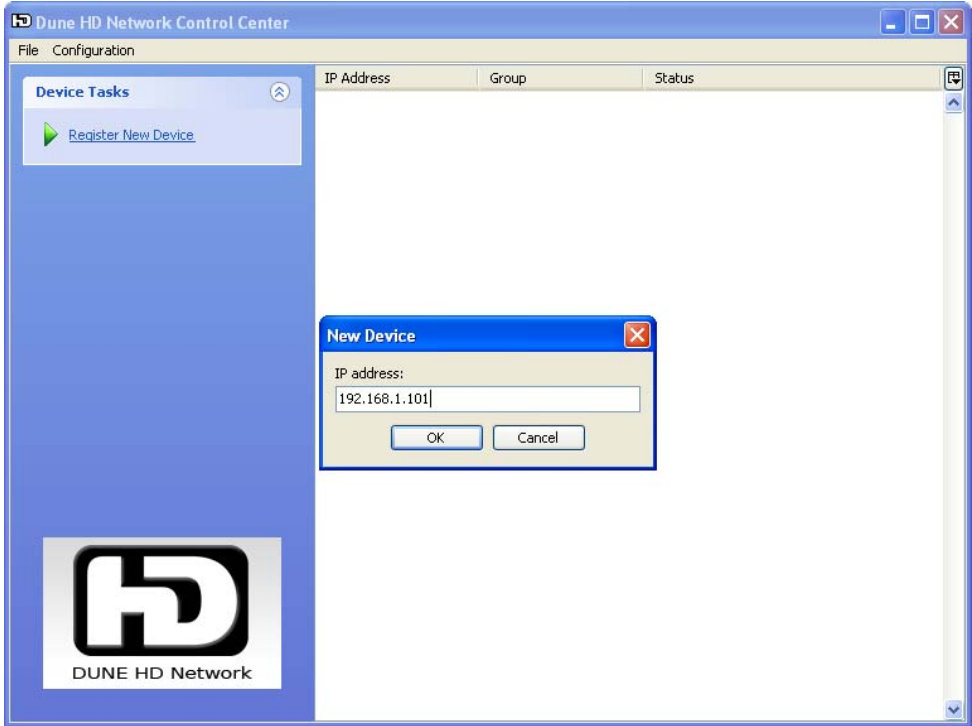
To start the application, just run the "HDNetwork.jar" file. For conveniency, you can create an application shortcut on the desktop or a programs menu.

The configuration of the Control Center, including the list of registered devices, is stored in the "hdnetwork.cfg" file located in the same folder as the "HDNetwork.jar".

Device List

The main window of the Control Center shows the list of registered devices. To the left of the list, a tasks pane is located which allows to execute tasks for currently selected device(s), and some global tasks.

Device Registration

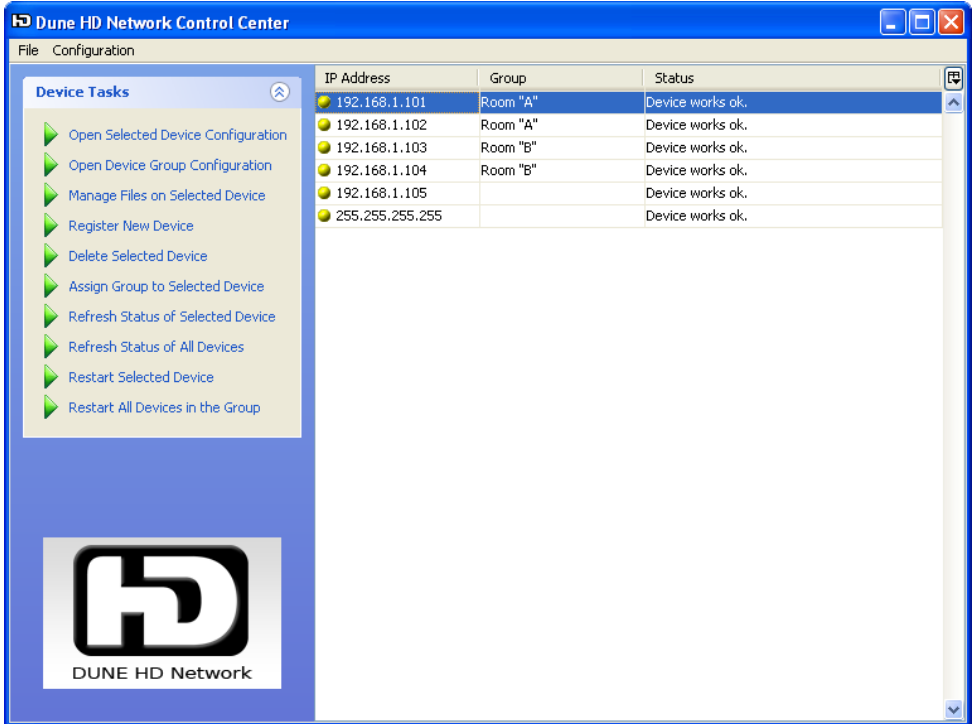


To start working with devices, their IP addresses should be manually registered in the Control Center using the [Register New Device](#) task.

The device may be later unregistered from the list using the [Delete Selected Device](#) task.

In order to be available on next run of the Control Center, the list of devices should be saved using the menu option [File > Save Device List](#). This stores the list in the "hdnetwork.cfg" file.

Device List and Tasks



The device list shows all registered devices, their group names and status. The list allows for **multiple selection** (click holding the **Ctrl** key on Windows or the **Command** key on MacOS).

The status reflects whether the device may be successfully contacted via the network, and shows error messages in case the device configuration cannot be retrieved from its configuration file. By default, the status of a device is updated when most tasks are performed, including the **Refresh Status...** tasks. If needed, the application may be configured to automatically update the device status in the specified intervals using the **Configuration > Automatic Device Status Update** menu. Please note that updating the status involves downloading the configuration file from the device via FTP.

The list of tasks offered in the **Device Tasks** pane depends on the currently selected device(s).

There are dedicated tasks which allow to **edit configuration** of a device or all devices in a group (described below), **assign group** to a device or devices (offering

to enter a new group name or choose an existing group), and **restart** a device, selected devices or all devices in a group (sending the "restart" remote command).

The [Manage Files on Selected Device](#) task allows to open the FTP client pointed to the "HDNETWORK" folder on the device.

Note: This task may be not supported for a particular platform. It is guaranteed to be supported on Windows.

Device Configuration

The corresponding tasks in the device list allow to open a device configuration window which allows to view and edit all options of the device configuration file in a convenient and user-friendly way. Several device windows may be opened in parallel. Please refer to the dedicated section of this manual for the conceptual description of the automated playback routine; this section only provides description for particular options.

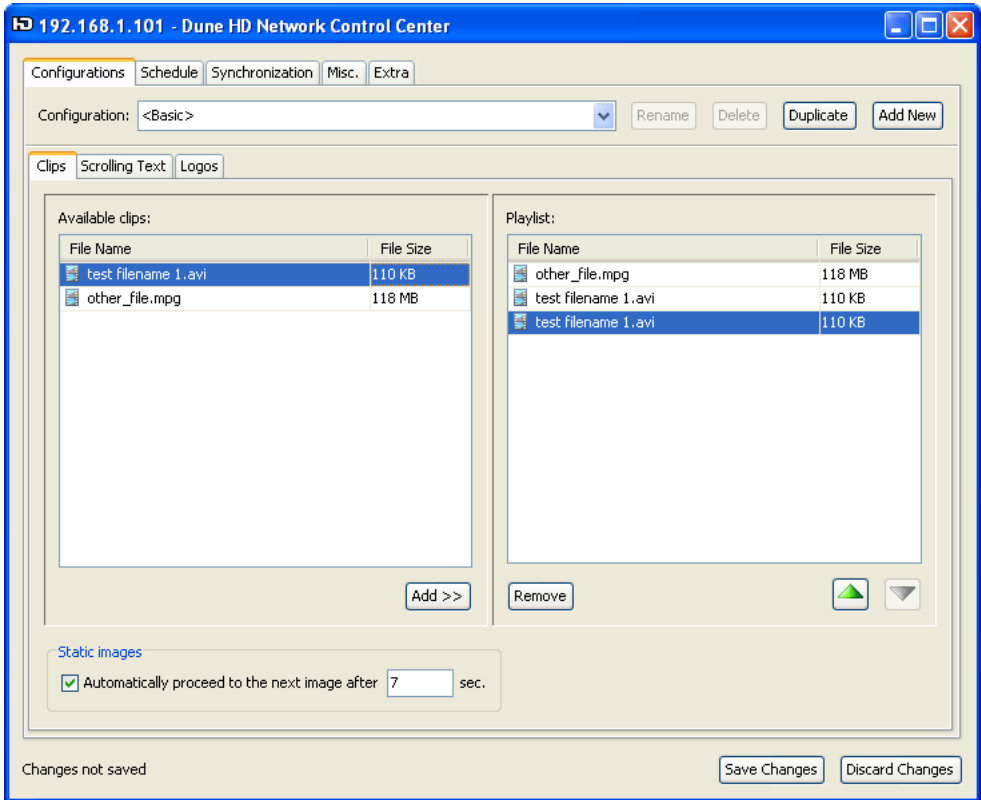
Note: The settings shown in the screen shots reflect the default values, except for the playlist and scrolling text (for which the default would be empty).

When the device configuration editing is finished (in case the user presses the [Save](#) button), the "config.txt" file on the device is updated. If the device configuration was opened using the [Open Device Group Configuration](#) task, the same configuration file is sent to all devices in the group.

Note: Some settings are put into effect when the next video clip is started (the [Clips](#), [Synchronization](#), [Misc.](#) tabs), some — when the current scrolling text messages cycle is finished (the [Scrolling Text](#) and [Logos](#) page). Please refer to the corresponding sections of this manual for details.

It is possible to create several different setting sets on the [Clips](#), [Scrolling Text](#) and [Logos](#) pages; such sets are called named configurations. A basic configuration always exists, while the user may create new configurations and assign names to them. Named configurations are used for working with schedule (the [Schedule](#) page) — for each time interval a configuration name to use is specified. The [Configurations](#) page offers the top pane which lists all defined named configurations. The contents of the inner pages always correspond to the named configuration currently selected in the top pane. The top pane provides some action buttons for the currently selected named configuration.

Clips



This page allows to configure the playlist which may include video clips and static images, as well as some related options.

The right pane shows the playlist. The left pane offers the list of files which are located on the local HDD of the Presenter, in the "HDNETWORK/clips" folder. This list is **not updated automatically**, so after changing the set of files on the Presenter's HDD, the configuration window has to be reopened.

Note: Files of unsupported formats (if any) are also shown in the left pane.

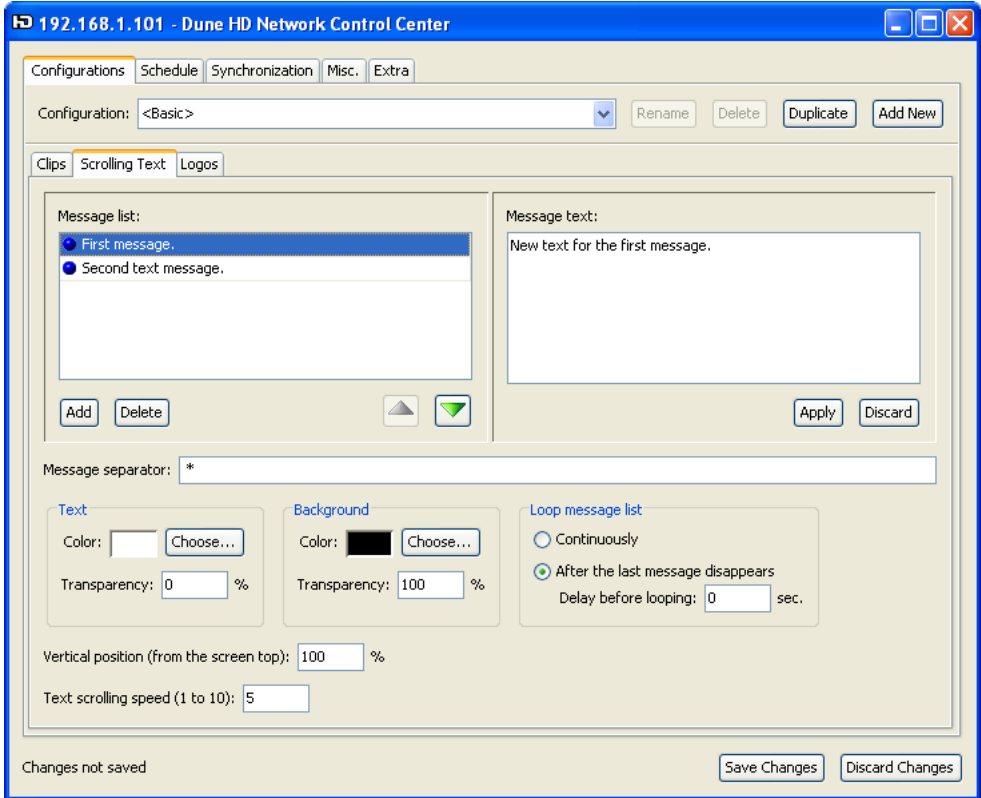
The playlist may include the same file multiple times. All lists support **multiple selection** (click holding the **Ctrl** key on Windows or the **Command** key on MacOS).

Options:

- [Automatically proceed to the next image after ... sec.](#)

Defines the show time for static images on the playlist. If checked, each image is shown for the specified period, after which the next playlist item is activated. If not checked, each static image is shown for an unlimited time, unless the IR remote control buttons are used to activate another playlist item.

Scrolling Text



This page offers to define the contents of the scrolling text and related options.

The left pane defines the list of messages which is cyclically shown in the order of appearance in this list. Buttons below the list allow to add, delete and rearrange messages.

The right pane allows to edit the message currently selected in the left pane. After editing, the **Apply** button saves the changes to the list. The entered text may contain multiple lines, but when saved, all line breaks will be replaced with spaces.

The Unicode is supported for the message text, but not all Unicode characters may be supported by the Presenter's firmware. Please refer to the section of this manual which describes the Unicode support for the configuration file.

Options:

- **Message separator**

Defines the text which is added between messages in the list. If empty, the messages are concatenated directly. This text may include multiple leading and trailing spaces.

- **Text** and **Background** groups

Define colors of scrolling text font and background stripe, and their levels of transparency.

- **Loop message list** group

If set to **Continuously**, the messages are shown in a cycle, without waiting for the last message to scroll out, the first message being concatenated to the last one via the separator (if any). Otherwise, the specified delay (0 seconds or more) takes place after the last message in the list is shown and scrolled out of the screen completely, before the first message in the list appears.

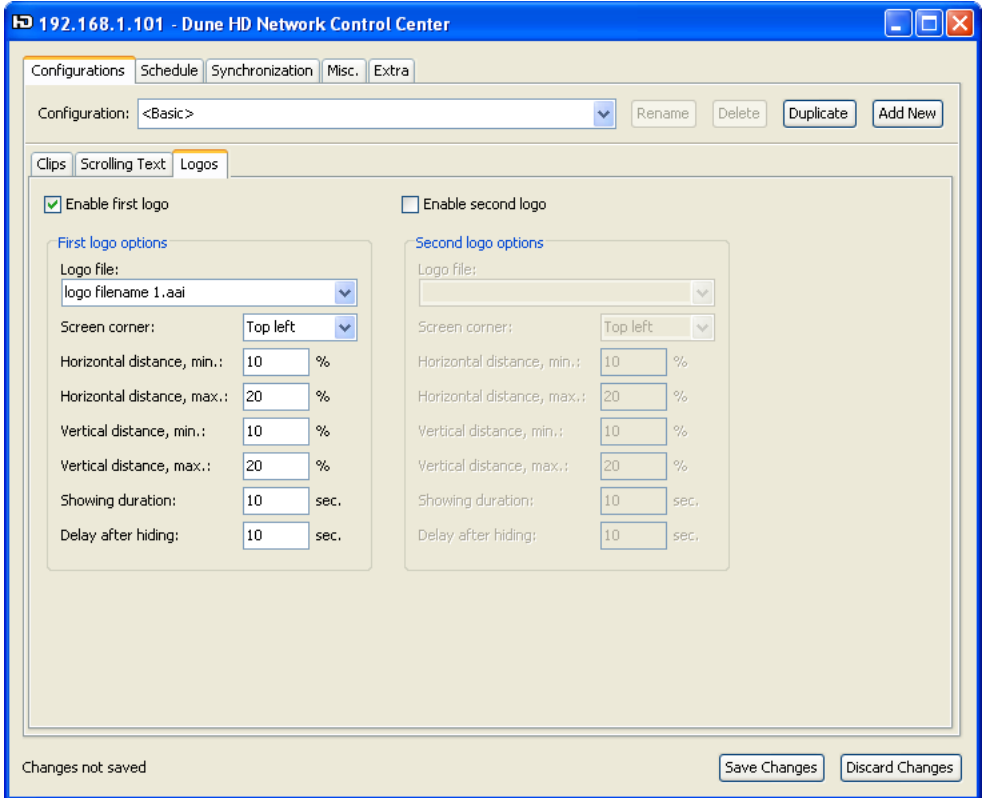
- **Vertical position**

Defines the vertical position of the scrolling text stripe, 100 being the screen bottom and 0 being the screen top.

- **Text scrolling speed**

Defines the speed of the text scrolling, 1 is the slowest, 10 is the fastest.

Logos



This page defines the graphic logos to show over the video.

Either one or both logos may be turned on.

The **Logo file** list shows the files located on the Presenter's local HDD in the "HDNETWORK/logos" folder. This list is **not updated automatically**, so after changing the set of files on the Presenter's HDD, the configuration window has to be reopened.

Note: Files of unsupported formats (if any) are also shown in this list.

Options:

- **Screen corner**

Defines the screen corner relative to which the logo position is calculated, called the base screen corner for the logo.

- **Horizontal distance** (min, max), **Vertical distance** (min, max)

Defines the distance from the base screen corner to the nearest logo corner. 100 corresponds to the maximum distance which the screen provides in the respective dimension.

These options specify a min-max range, the actual value will be a random value in that range for each time a logo appears. This may be helpful to prevent screen wearing for some screen types.

A max value should never be less than the respective min value.

- **Showing duration**

The number of seconds (0 or more) for which the logo is shown.

- **Delay after hiding**

The number of seconds (0 or more) to wait after the logo has been shown for the configured number of seconds and then hidden. After this pause, another logo (or the same one if another logo is not configured) is shown.

Schedule

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Configurations **Schedule** Synchronization Misc. Extra

Monday: 00:00-24:00

Tuesday: 00:00-24:00

Wednesday: 00:00-24:00

Thursday: 00:00-24:00

Friday: 00:00-24:00

Saturday: 00:00-24:00

Sunday: 00:00-24:00

Reset to Default

Check the days when the device should be on. For these days, enter the list of time intervals when the device should be on, and specify which configuration to use for each interval, in the following format:

hh:mm-hh:mm "Configuration name", ...

The configuration name should be specified in quotes. Omit it (together with quotes) to specify the basic configuration.

Example:

09:00-13:00, 14:00-18:00 "Evening"

Changes not saved

Save Changes Discard Changes

This page defines the schedule.

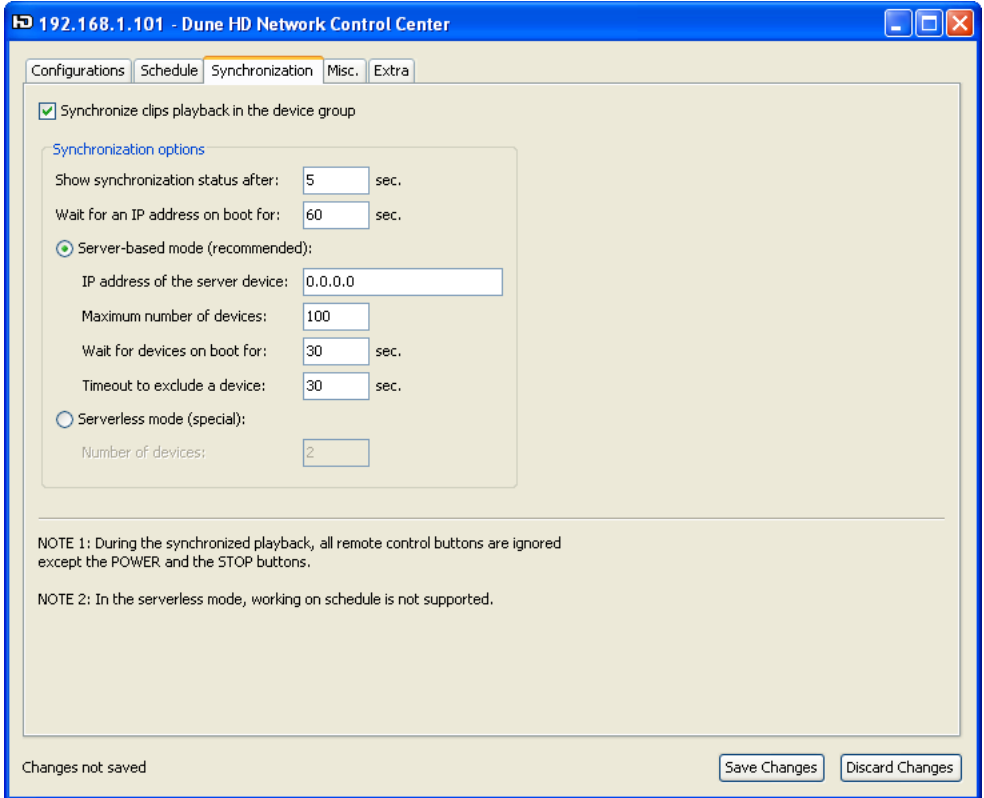
The values shown in the screen shot define the default schedule, which prescribes using the basic configuration all the time.

If a certain day of week is unchecked, the Presenter will stay in the “off” state for this day. Otherwise, the time periods should be specified along with configuration names.

For the syntax of schedule lines, please see the description in this screen shot, and the section of this manual devoted to the configuration file syntax (the configuration file schedule options have the same syntax as these text fields).

Note: If the synchronized playback mode is on, the schedule should be reset to the default.

Synchronization



This page allows to turn on the synchronized playback of playlist items, and provides necessary options. Please refer to the corresponding section of this manual for the conceptual description of the synchronized playback, and to the section devoted to the configuration file syntax for the description of the options meaning.

Options and their equivalents in the configuration file:

- **Show synchronization status after:** `sync_status_info_delay`
- **Wait for an IP address on boot for:** `sync_network_start_timeout`
- **IP address of the server device:** `sync_server_address`
- **Maximum number of devices:** `sync_server_max_clients_number`
- **Wait for devices on boot for:** `sync_server_startup_timeout`
- **Timeout to exclude a device:** `sync_server_invalidate_timeout`
- **Number of devices:** `sync_num_devices`

Misc.

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Configurations Schedule Synchronization **Misc.** Extra

Lock remote control buttons

Do not handle remote control buttons in the "Digital Signage" mode, except for the special key sequence configured herein which behaves like the "Stop" button, thus, exits the "Digital Signage" mode.

Remote control lock options

Unlock buttons sequence:

A sequence of digits; the default is "78677867" (letters "stopstop").

Show technical info at start for sec.

Changes not saved

This page defines miscellaneous options.

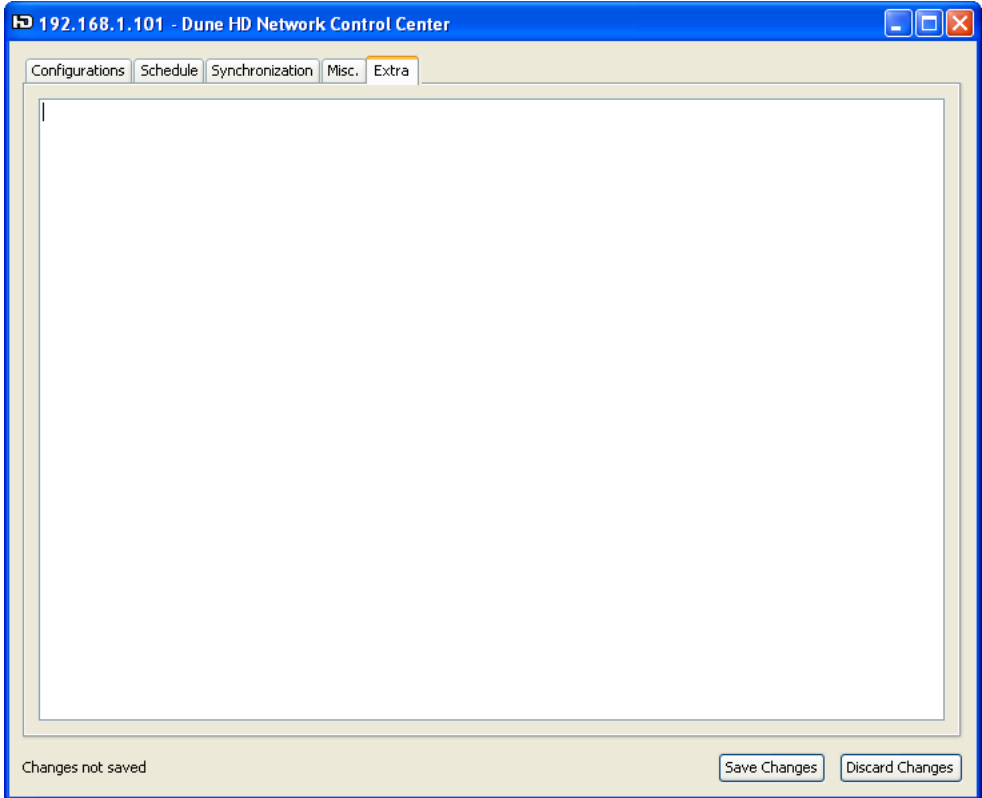
- [Lock remote control buttons](#)

If checked, the IR remote control buttons will be locked during the Digital Signage mode. When the buttons are locked, the specified sequence of numeric buttons allows to exit the Digital Signage mode.

- [Show technical info at start for ... sec.](#)

If checked, the technical information (Presenter's IP address, etc.) is shown for the specified time period after the Digital Signage mode is entered.

Extra



This page offers a text field which may be directly edited by the user. When the configuration file is loaded by the Control Center, all options which were not recognized go to this page. When the configuration is saved, all text written in this page is appended to the configuration file.

Attention: No checking is performed for the text entered in this page, please use it carefully.

Normally this page is blank. Some options may appear here in the following cases:

- Misprints in the option names in the configuration file (e.g. when it was generated by the user).
- An older version of the Control Center is used; the configuration file corresponds to a newer version of the Presenter firmware which supports new options.

Programmatic Access

This section provides information which is helpful if manual control of Presenter devices via the Control Center application is not enough for your installation.

The Dune HD Network system allows a customer to write her own applications/scripts which interact with Presenter devices via the network. The interaction is performed via reading/changing the files located on Presenters' local HDDs, including the configuration file.

Configuration File

The configuration file is located on the Presenter's local HDD: "HDNETWORK/config.txt". It is a text file in UTF-8 encoding. It lists a number of options and their values.

If some option is missing in the file or has a wrong value, no error is reported and the option accepts its default value specified in this manual. Unknown options are ignored.

Note: In case your Dune HD Network contract includes such kind of service, sending a debug dump to the customer support may reveal the error/warning messages of configuration file parsing. See the player manual for instructions on debug dump generation.

There are options of two kinds. Simple options are represented by a name and a value, written in one line. List options are represented by a number of lines with the same option name and (possibly) different values. The order of lines in the file is insignificant except for the relative order of the items for list options.

Simple and list options are divided into global ones, and belonging to so-called named configurations. A named configuration is a group of options which has user-defined name. Each configuration consists of the same option set, but with (possibly) different values. Configurations are used to provide multiple playlists for playback on schedule. There always exists a configuration with an empty name, called basic. If it is not explicitly presented in the configuration file, its options accept default values.

Unicode Support

The Unicode is supported for scrolling text, however, the set of fonts included in the Presenter's firmware may not include all the Unicode characters. Unsupported characters are displayed as "?". The characters from the following code pages are supported:

- Central European (1250)
- Cyrillic (1251)
- Western European (1252)
- Greek (1253)
- Turkish (1254)
- Hebrew (1255)
- Arabic (1256)
- Baltic (1257)
- Vietnamese (1258)

Note: The set of supported characters may be changed or extended in future versions of the firmware.

Syntax

Each option value is defined on a separate line. Empty lines are ignored, as well as comment lines starting with a '# '.

Each option has a name — a sequence of small latin letters and underscores, and a value, which depends on the option type. Value is written after the option name, separated with a space.

A value may be included in double or single quotes, which allows for empty values and values containing otherwise trimmed leading and trailing spaces. The quoted value may contain inner quotes of any kind, they do not require any special representation.

If an option belongs to a named configuration, the following prefix may be added before the option name: `config "name"`, where *name* stands for the configuration name. Such name should not contain double quotes and should have no more than 127 characters. If the configuration prefix is not added, the option is considered to belong to the basic configuration which has empty name.

Here is the example of a simple configuration file which illustrates different option kinds:

```

# List options belonging to the basic configuration
clip image1.png
clip image 2.png

# List option belonging to the "Mo" configuration
config "Mo" clip video_for_monday.mpg

# List options belonging to the "Mo" configuration
config "Mo" message Welcome on Monday!
config "Mo" message "Message with a trailing space "

# List option belonging to the basic configuration
message This message belongs to the basic configuration

# Simple global option
schedule_monday 00:00-24:00 "Mo"

```

In this example, two configurations are defined: the basic one defining a playlist of two static images and one message for the scrolling text, and the one named "Mo" defining a playlist of a single video clip and two messages. The "Mo" configuration is set to be in effect for Monday, and the basic configuration is in effect for all other days.

Named Configuration Options

Options described in this section always belong to one of the named configurations: either the basic one (having an empty name) or the explicitly specified in the `config "name"` prefix.

clip *file_name*

List option (may occur multiple times).

Defines the list of video clips and static images to play. The *file_name* should be one of the file names in "HDNETWORK/clips", without a path. The playlist is cyclically shown in the order of appearance of these options.

By default (if no such options are specified), the playlist is empty, so no video and static images are displayed, while the scrolling text and logos are (if configured).

image_delay *seconds* (decimal ≥ 0 , default is 0)

Defines the way static images from the playlist are shown. If set to 0, no automatic switch to next playlist item is performed, the switch may be performed only with the IR remote control. Otherwise, the switch occurs after the specified number of seconds.

message *message_text*

List option (may occur multiple times).

Defines the list of messages for scrolling text. The list of messages is cyclically shown in the order of appearance of these options.

By default (if no such options are specified), the scrolling text is not shown.

message_text_color *rrggbb* (hexadecimal, default is ffffffff)

message_text_transparency *percentage* (0..100, default is 0)

message_background_color *rrggbb* (hexadecimal, default is 000000)

message_background_transparency *percentage* (0..100, default is 100)

Define the color of scrolling text font and background stripe, and their levels of transparency.

message_separator *separator_text* (default is empty)

Defines the text which is added between messages in the list. If empty, the messages are concatenated directly.

message_vertical_position *percentage* (0..100, default is 20)

Defines the vertical position of the scrolling text stripe, 100 being the screen bottom and 0 being the screen top.

message_block_interval *seconds* (-1 or decimal ≥ 0 , default is 0)

Defines the delay after the last message in the list is shown and scrolled out of the screen completely, before the first message in the list appears.

If set to -1, the messages are shown in a cycle, without waiting for the last message to scroll out, the first message being concatenated to the last one via the separator (if any).

message_speed *speed* (1..10, default is 5)

Defines the speed of the text scrolling, 1 is the slowest, 10 is the fastest.

logo_first_filename *file_name* (default is empty)

Defines the first logo to show over the video clips and/or static images. The *file_name* should be one of the file names in "HDNETWORK/Logos".

If no file name is specified, then the first logo is not shown.

logo_first_corner *corner* (one of top-left, top-right, bottom_left, bottom-right; default is top-left)

Defines the screen corner relative to which the logo position is calculated, called the base screen corner for the logo.

logo_first_space_horizontal_min *percentage* (0..100, default is 10)

logo_first_space_horizontal_max *percentage* (0..100, default is 20)

logo_first_space_vertical_min *percentage* (0..100, default is 10)

logo_first_space_vertical_max *percentage* (0..100, default is 20)

Defines the distance from the base screen corner to the nearest logo corner. 100 corresponds to the maximum distance which the screen provides in the respective dimension.

These options specify a min-max range, the actual value will be a random value in that range for each time a logo appears. This may be helpful to prevent screen wearing for some screen types.

A max value should never be less than the respective min value.

logo_first_show_time *seconds* (decimal ≥ 0 , default is 10)

The number of seconds for which the logo is shown.

logo_first_time_after *seconds* (decimal ≥ 0 , default is 10)

The number of seconds to wait after the logo has been shown for the configured number of seconds and then hidden. After this pause, another logo (or the same one if another logo is not configured) is shown.

logo_second_filename *file_name* (default is empty)

logo_second_corner *corner* (one of top-left, top-right, bottom_left, bottom-right, default is top-right)

logo_second_space_horizontal_min *percentage* (0..100, default is 10)

logo_second_space_horizontal_max *percentage* (0..100, default is 20)

logo_second_space_vertical_min *percentage* (0..100, default is 10)

logo_second_space_vertical_max *percentage* (0..100, default is 20)

logo_second_show_time *seconds* (decimal ≥ 0 , default is 10)

logo_second_time_after *seconds* (decimal ≥ 0 , default is 10)

The same as `logo_first_...` options but for the second logo.

Global Options

Options described in this section do not belong to any particular named configuration.

schedule_monday *schedule_expression* (default is empty)
schedule_tuesday *schedule_expression* (default is empty)
schedule_wednesday *schedule_expression* (default is empty)
schedule_thursday *schedule_expression* (default is empty)
schedule_friday *schedule_expression* (default is empty)
schedule_saturday *schedule_expression* (default is empty)
schedule_sunday *schedule_expression* (default is empty)

Define the schedule. Each option specifies the schedule for the respective day of week. If the value is empty, the Presenter is off for that day of week. Otherwise, the *schedule_expression* defines time ranges and named configurations that should be in effect in those ranges. Outside of the specified time ranges the Presenter is off.

The *schedule_expression* is a comma-separated list of time ranges each optionally followed by a configuration name in double quotes (if omitted, the basic configuration is assumed). Each time range has the form "*hh:mm-hh:mm*", where the either end may be omitted (a start/end of day is assumed) and the minutes may be omitted together with ":" ("00" is assumed).

Example: Monday to Friday stay off; on Saturday, play the basic configuration all the time; on Sunday, play the "Day" configuration from 9:00 to 13:30, and the "Evening" configuration from 14:00 to 24:00, other time stay off.

```
schedule_saturday 0-24  
schedule_sunday 09-13:30 "Day", 14:00- "Evening"
```

initial_info_show_time *seconds* (decimal ≥ 0 , default is 15)

Defines a period for which the technical information (Presenter's IP address, etc.) is shown after the Digital Signage mode is entered.

If 0, the technical information is not shown at all.

group_name *name* (no longer than 127 characters, default is empty)

A name of the group to which this Presenter belongs.

sync_enabled flag *flag* (0 or 1, default is 0)

If this option is 0, the synchronized playback is off and other sync_... options are not in effect.

sync_status_info_delay seconds *seconds* (decimal ≥ 1 , default is 5)

In case waiting for other devices to report being ready for playback of next playlist item exceeds this time period, a technical information is shown on the screen, like the number of synchronized devices, etc.

sync_network_start_timeout seconds *seconds* (decimal ≥ 0 , default is 60)

Defines the maximum time a Presenter should wait to acquire its IP address via DHCP before the first synchronization phase begins. If this period is over, and no IP address is received, the Presenter exits the Digital Signage mode.

sync_type *type* (one of server, noserver; default is server)

Defines the particular synchronization mode: server-based or serverless.

sync_server_address *ip_address* (default is 0.0.0.0)

Setting for server-based synchronization mode.

Defines the IP address of one of the Presenters of the same group, which acts as a server.

sync_server_max_clients_number *number* (decimal ≥ 1 , default is 100)

Setting for server-based synchronization mode.

Defines the maximum number of Presenters in a group. The actual number of Presenters in the group should not exceed this value.

It is recommended to specify this value with some reserve so that it will be possible to add devices to the group without having reconfigured all other devices.

sync_server_startup_timeout seconds *seconds* (decimal ≥ 0 , default is 5)

Setting for server-based synchronization mode.

Defines the duration of the first synchronization phase. Only the devices which have reported their presence to the server during this period will participate in the synchronized playback.

sync_server_invalidate_timeout seconds *seconds* (decimal ≥ 5 , default is 30)

Setting for server-based synchronization mode.

Defines the period the server waits for other devices to report being ready for playback on non-first synchronization phases. If a device did not respond during this period, it is excluded till the next synchronization phase, and other devices start playback synchronously with each other.

sync_num_devices *number* (decimal ≥ 1 , default is 2)

Setting for serverless synchronization mode.

Defines the exact number of devices in the group. The playback won't start until this number of devices have reported being ready.

key_lock *flag* (0 or 1, default is 0)

key_unlock_sequence *sequence_of_digits* (default is 78677867)

Defines whether the IR remote control buttons should be locked. If yes, the specified sequence of numeric buttons allows to exit the Digital Signage mode.

Remote Commands

There is a special mechanism which allows to remotely send a number of commands to a Presenter working in Digital Signage mode.

This mechanism is used by the Control Center application for some of its functions, and it may be used to control a Presenter by third-party computer programs, e.g. developed by the user for a particular installation.

To send a command, a text file named "command.txt" should be created in the "HDNETWORK" folder on the Presenter's HDD, e.g. using FTP or SMB access. The file should contain the command text. The command is executed immediately upon the file creation, and the file is deleted.

Note: The list of commands may be extended in future firmware versions.

Available Commands

- restart

Restart the Presenter. The Digital Signage mode is entered after the restart regardless of the automatic start setting.

Troubleshooting

This section describes typical cases of undesired/unexpected behavior of a Presenter, and the possible reasons for such behavior.

Should you ever encounter a problem with Dune HD Network, please consider the points in this section before applying for customer service.

No Display

- The **video mode settings** in the player menu [Setup](#) > [Video](#) are not properly configured.

Note: In this case the player menu is also not shown. Please refer to the player manual for instructions on changing video mode using the IR remote control while the display is blank.

- An **empty playlist** is in effect according to the schedule.
- The schedule demands the **“off” state** for the current time.
- The playlist includes a completely **black static image**.
- The synchronized playback mode is on, and the Presenter is **waiting for synchronization** with other Presenters.

Note: In case some other Presenter stops working or loses the network connection, waiting time may be infinite. Please refer to the section of this manual which describes the synchronized playback.

- The Presenter is in the **“Standby”** mode.

Note: To exit the “Standby” mode, the IR remote control should be used. The schedule is not able to wake up a Presenter from this mode.

Schedule Behaves Unexpectedly

- The **real-time clock** is not setup properly. Please refer to the player manual for details on real-time clock.
- In case the configuration file has been edited manually, a misprint in a **configuration name** may result in basic configuration being used for a certain time interval.

- The three parallel activities — playlist playback, scrolling text and showing graphic logos — perform configuration **switch at different moments**. This is not a malfunction, see the detailed description of schedule support in this manual.

No Video Clips Playback

Scrolling text and/or graphic logos are shown properly.

- Some point of “**No Display**” may apply.
- Some point of “**Incorrect Schedule Behaviour**” may apply.
- Video clip **files are missing** on the local HDD.
- Video clip files have **unsupported format**.

No Scrolling Text

- An **empty message list** is in effect according to the schedule.
- Fully **transparent colors** are configured for the scrolling text.
- The schedule demands the “**off**” **state** for the current time, but the current video clip is not finished yet, and the message list is already shown to the end.

No Graphic Logos

- The logos are **not configured** in the configuration which is in effect according to the schedule.
- The logo **files are missing** on the local HDD.
- The logo files have **unsupported format**.

Note: The supported formats for logo files differ from those for static images on a playlist. Please refer to the description of graphic logos showing in this manual.

- The logos configuration specifies **zero time period** for a logo to appear.
- The schedule demands the “**off**” **state** for the current time, but the current video clip is not finished yet, and the message list is already shown to the end.

Unable to Access via FTP/SMB

- The **network settings** are not configured properly in the player menu [Setup](#) > [Network](#).

- The **network is unavailable** physically.
- You are using a **wrong IP address**. The IP address of a Presenter can be found in the player menu [Setup > Information](#).

IR Remote Control Problems

- The remote control **buttons are locked**. See the corresponding section of this manual.
- The Presenter is configured for **synchronized playback**. See the corresponding section of this manual.
- The IR reception is subject to **interference** with other electronic or heating devices.
- The remote control unit has weak or missing **batteries**.
- The IR signal is accepted simultaneously by a number of **Presenters located close** to each other.

No Automatic Start

- The automatic start in the Digital Signage mode is **not configured** in the player menu [Setup > Applications > Digital Signage](#).
- The "HDNETWORK" **folder is missing** on the local HDD.

“Stop” Immediately After Start

- The **synchronized playback** is configured, and the **network** is not available or the configured time to **wait for an IP address** is too small.

Missing the “Digital Signage” Menu Item

- The Presenter has **no proper license**. The “Dune HD Network” license should be installed. The license type may be checked in the player menu [Setup > Information](#).
- The player menu [Setup > Applications > Digital Signage](#) has a setting to hide the [Digital Signage](#) menu item.

Configuration File Problems

See the corresponding section of this manual for information on configuration file parsing.

- An **option name is misspelled** and therefore the line is ignored.
- An **option value is invalid** and therefore the line is ignored.
- An option is referred to a **different named configuration**.
- The configuration file **changes are not yet put into effect**. The description of moments when the changes are detected and put into effect is provided in this manual.
- The configuration file is uploaded to a **wrong location**, other than "HDNETWORK/config.txt".