

Documentation for and an Administrators Guide to the FR Rotary Video Server (frtv)

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Preface

This is intended as a manual and documentation for the FR-Rotary video-server. The video-server is a Windows 2000 computer connected to the Rotary Internet and local cable TV network. The server shows movies on the Cable TV network, which the tenets of Rotary student housing upload to the server. The administrators of the video-server are responsible for scheduling movies and maintaining the server.

This paper is only intended for internal use by the administrators of the video-server.

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1 Introduction

1.1 Background

This paper is intended as a manual and documentation for the Rotary Video Server.

The term Video Server refers to the computer and FR.tv refers to the cable TV channel. The terms may be used interchanging.

FR.tv has been an on going process; and besides me the following persons have contributed to this project.

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1.2 Aim and Scope

The intended use for this paper is the administrators for the Video Server. The expected knowledge for the reader is either

- Operator: Knowledge of the Windows operating system environment and media files.
- Programmer: Knowledge of database programming in a Windows environment as well as web development.

Most of the programs are developed in Visual Basic, but any language will suffice for development.

This paper should be considered as a cookbook, i.e. you are not expected to read the chapters in chronological order.

1.3 Delimitations

This paper is primarily a manual for the Video Server and secondarily documentaion for the developed application. No source code will be included here since it could be found on the server. Screen dumps are supplied for the developed applications, but usually not for the web applications.

This paper assumes that the user uses a Windows based workstation. The Video Server utilizes VNC and SSH for remote login, which can be accessed from any platform, but the developed VB applications requires Windows or have to be executed on the Video Server.

1.4 Usernames and passwords

Windows login, SSH, Remotly Anywhere	administrator	_____
FTP	_____	_____
VNC	-----	_____
Openlink	Remote-user	-----
IN-Maskinen (SSH, FTP Windows Network)	frtv	_____
IN-Maskinen VPN server	Fr	_____

2 Remote Login

The Video-server is primarily accessed with remote login. The screen resolution is set to 1024*768, the local monitor only support 600*800 so in order to access the video-server locally the screen resolution must first be lowered. The local monitor is primarily used to access the bios since all other operations can be done remotely.

Internet access to the video-server is only allowed from the Rotary student housing, i.e. IP no starting with 193.11.234. and 193.11.235.

Don't forget to start *Today's Schedule* when you log out from the server!!

2.1 VNC

You can download a Windows VNC client or use the Java client from the admin page.

<http://www.fr-rotary.com:81/admin.asp>

VNC homepage: <http://www.uk.research.att.com/vnc/>

VNC-Server address: www.fr-rotary.com:20

The :20 means port 5920 (the base port for VNC is 5900)

2.2 Remotely Anywhere

Remotely anywhere offers a remote login like VNC as well as controlling server functions. Login from the server page.

2.3 SSH

You can login with SSH to the Video Server. Use the following configuration.

- Host: www.fr-rotary.com or 193.11.234.4
- Port: 1022

Port 22 is the default port for SSH. There is a Java SSH client on the admin page.

SSH login can be useful when some program crashes and consume all CPU, and thereby makes it impossible to login with VNC.

Use *pskill* to kill a process and use *pslist* to get the process id

```
pskill <program_name>
```

```
pskill <process id>
```

To reboot the computer, use *psshutdown*.

2.4 FTP

The video-server uses *Serv-U ftp* as ftp server. The ftp server is configured with the tray U-icon. Log files for the ftp are located in the folder:

C:\Documents and Settings\LogFiles\W3SVC1\

They can also be read from the admin web page.

Use the following configuration to access the ftp

Host: www.fr-rotary.com

Port: 2122

Passive transfers are *not* supported!

2.5 Openlink

Openlink is an ODBC driver that enables ODBC resources on one machine to be 'exported' to another machine. It can be considered as a low-end database server. The freeware version of Openlink allows four concurrent ODBC connections. Openlink consist of a server part, which runs on the Video Server, and a client part which is installed on a remote computer.

The Openlink server part is configured with a web interface at <http://localhost:8000/>. Tip: Login with SSH and portforward port 8000 to your home computer, you can then access the page with your own web browser.

The client part of Openlink can be found in *D:\Appz\OpenLink 4.1 Client\nto3czzz.zip*. Install this on your home computer and use the configuration below.

OpenLink ODBC Setup

Multi Tier ODBC Setup Version 4.10
Copyright 1994-2001 OpenLink Software

Datasource

Name: movieODBC
Comment:

Database

Name: movieODBC
Username:

OpenLink Server

Domain: Odbc
Protocol: TCP/IP
Hostname: 193.11.234.4
Port: 5000

Optional Server (gateway configurations only)

Others

Read-only connection
 No login dialog box
 Defer fetching of long data
Row buffer size: 30

OK Cancel Help Test Connection

You can now run the programs and .asp scripts that manipulate the database from your home computer.

3 Daily operations

The daily operations consists of the following tasks

- Schedule movies
- Check and add newly uploaded movies to database
- Remove old movies
- Other maintenance

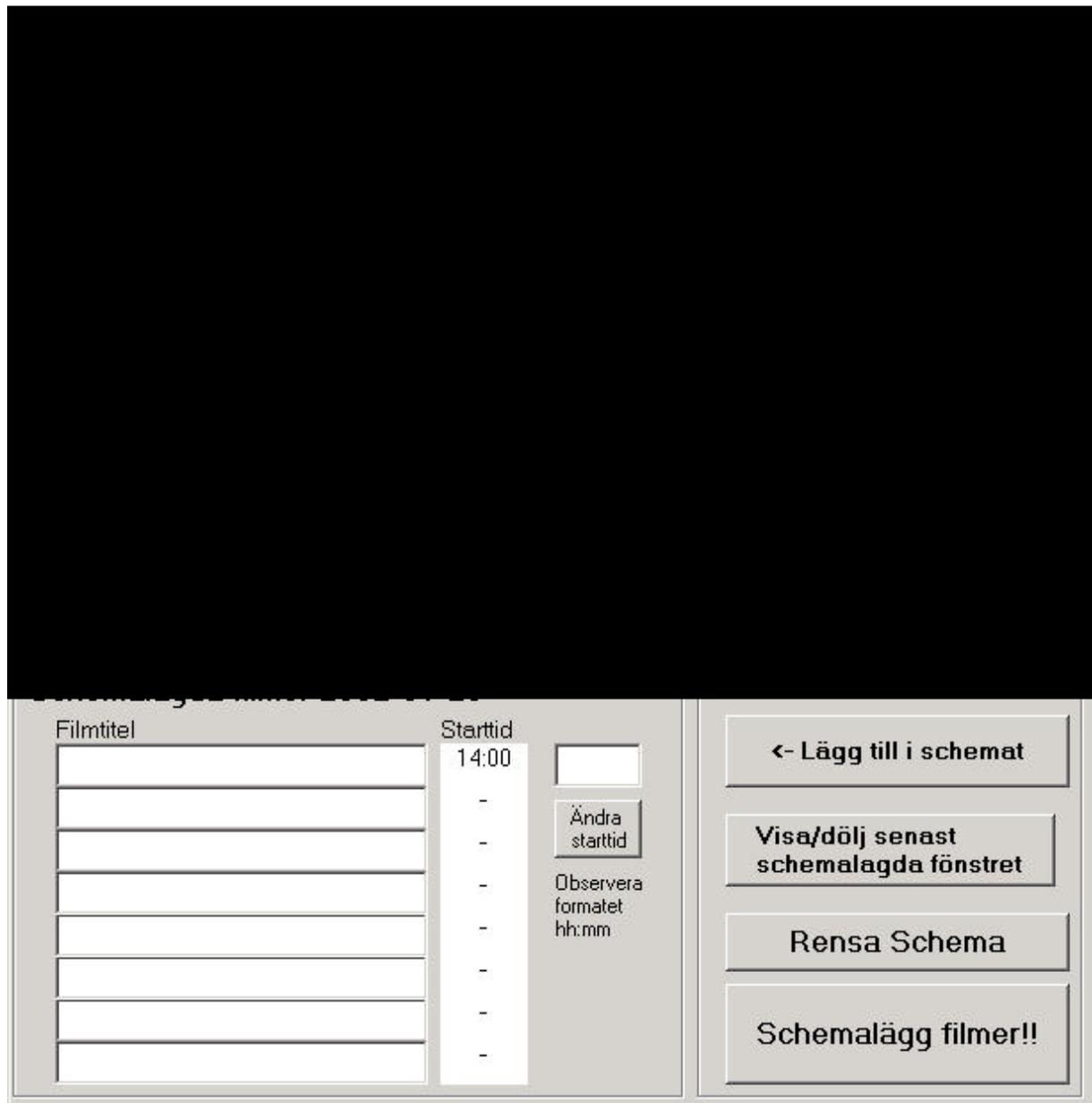
3.1 Schedule movies

The movies are schedule by adding the movie and the start time to the *schedule* database table. Note: Don't schedule a movie for midnight i.e. 00:00, schedule it 1 second past midnight, 00:00:01.

The program `schedule_mate` could be used for easy operation.



When SheduleMate is started, you are asked for the first time slot to schedule.



The main dialog in *ScheduleMate* looks like the above screen dump. Mark a movie and press “*Lägg tilli i schemat*” to schedule it. When the day is completed press “*Schemalägg filmer!!*”. The program then jumps to the next day.

The program assigns the first timeslot to 18.00 for weekdays and 14.00 on the weekend.

3.2 Add new movies

New movies are uploaded to the upload directories, f:\upload, g:\upload and \\in\upload on IN-maskinen. (currently mapped to H:)

Adding movies consists of

1. Checking that the movies are complete and works ok.

2. Create a playlist if the movie consists of multiple files
3. Create a directory with the movies name in the movie directory (f:\movies or g:\movies) and copy the move files there.
4. Create database entry for the movie in the *movies* database table.

This is a screen dump of the movie database table

Video	Movie Title	Deleted	Rating	Subject	Length	Acquired Date	imdb	Filename	Player	LastRuntime	NextRun	Comment	Scheduled Co
1	American Pie	<input checked="" type="checkbox"/>	7.0	Comedy	01:35	2001-03-20	0163051	F:\movies\American Pie\FM MS MediaP		1-19 14:00:01			6
2	Fight Club	<input checked="" type="checkbox"/>	8.5	Action	02:14	2001-03-20	0137523	F:\movies\Fight Club\Fc.m3u MS MediaP		2-16 16:30:01			4
3	The matrix	<input checked="" type="checkbox"/>	8.5	Action	02:13	2001-03-20	0133093	F:\movies\The Matrix\thd-m MS MediaP		1-24 18:00:01			2
4	Gladiator	<input checked="" type="checkbox"/>	8.2	Action	02:35	2001-03-20	0172495	F:\movies\Gladiator\gladisto MS MediaP		1-11 14:00:01			3
5	Getaway in Stockholm	<input checked="" type="checkbox"/>	--	Documen	00:21	2001-03-20		F:\movies\Getaway in Stock MS MediaP				Homemovie:	0
6	X-Men	<input checked="" type="checkbox"/>	7.5	Action	01:44	2001-03-28	0120503	F:\movies\X-Men\ira-xmen MS MediaP		1-18 18:00:01	8:07:00		7
7	Toy Story	<input checked="" type="checkbox"/>	7.9	Animatio	01:32	2001-03-28	0114700	F:\movies\Toy Story\Toy Sto MS MediaP		9-29 18:00:00			4
8	Snatch	<input checked="" type="checkbox"/>	8.1	Thriller	01:33	2001-03-29	0208092	F:\movies\Snatch\Snatch.Dv MS MediaP		2-10 14:00:01			5
9	Red Planet	<input checked="" type="checkbox"/>	5.5	Sci-Fi	01:46	2001-04-01	0199753	F:\movies\Red Planet\red.pl MS MediaP		1-23 18:00:01			2
10	What Lies Beneath	<input checked="" type="checkbox"/>	6.8	Thriller	02:10	2001-04-01	0161081	F:\movies\What Lies Beneat MS MediaP		0-31 00:00:01			3
11	Tonskips Tallinn	<input checked="" type="checkbox"/>	7.9	Comedy	01:00	2001-04-03	0283039	F:\movies\Tonskips Tallinn\T MS MediaP		2-13 18:00:01			2
12	U-571	<input checked="" type="checkbox"/>	6.8	War	01:56	2001-04-10	0141926	F:\movies\U-571\wira-ndv MS MediaP		1-15 20:00:01			6
13	2001: A Space Odysse	<input checked="" type="checkbox"/>	8.3	Sci-Fi	02:29	2001-04-10	0062622	F:\movies\2001 A Space Ody MS MediaP		2-23 20:00:01			4

Instead of manually editing the movie database the program *AddMovie* could be used. The program can automatically parse imdb.com for movie data (if you supply the imdb no.) and calculate the movie length.

Screen dump from AddMovie

Simple instruction on how to add a movie:

1. Press Select file to select the movie file. You can place a path in the clipboard with the explorer command *Add path to clipboard*; in that case you can use the *paste* button.
2. If the movie consists of multiple files, press *Make Play list*. A play list is created and opened in Notepad, check it and close Notepad.
3. Press *Copy from DIR name* or *Copy from Filename* to get the filename to the *Movie Title* input line.
4. Press *IMDB Search*, IMDB is searched with the Movie Tile, an Internet Explorer window is opened with the result. Select the appropriate result.
5. Copy the IMDB no or the complete url (e.g. <http://us.imdb.com/Title?0033467>) to the clipboard.

6. Press *Paste* or *Paste IMDB# from URL* in the IMDB frame. The IMDB no. appears in the no. field.
7. Press *Parse IMDB* to retrieve IMDB rating and IMDB genre.
8. The two plus buttons next to Rating are used to increase the rating by 0.5 and 0.1.
9. Press *Get Movie Length* to calculate movie length. The movie length appears in the Length field.
10. One can use the +1 and -1 buttons next to Acquired and Counter to decrease the acquired date and increase scheduled counter.
11. Select the appropriate movie player, usually MS Movie Player 6.
12. Press *Open Movie*, the movie opens in the selected Movie player. Check that the movie opens OK and that the movie length is accurate.
13. Press *Add Entry* to add the movie to the database.

The program automatically shifts focus between fields and sets default command button depending on what you are doing. Adding a new movie can often be accomplished by using the enter and tab keys.

BUGS: The web page from imdb.com that is parsed for movie information is fetched by the Visual Basic component *Microsoft Internet Transfer Control*.

Unfortunately is the *http-user-agent* field in the http header request supplied by *Microsoft Internet Transfer Control* blocked by imdb.com.

To circumvent this the program WebWasher is used. WebWasher is a small proxy used for stripping ads and popup windows from web pages, it can also be used for rewriting the *http-user-agent* field.

If single or double quotes (“ or ’) are used in any field, the program crashes. Use (‘ or `) instead.

3.3 Adding TV episodes

TV episodes are primarily used for LunchTV. Adding episodes is similar to adding movies. Episodes are kept in a separate directory structure (currently under F:\TV), and organized per type and season.

Information about TV episodes are kept in the database table Episodes.

The screenshot shows a Windows-style dialog box titled "Add Episode". It features a "File" menu at the top left. The main area contains several sections: "Episode Type" with a dropdown menu showing "Friends"; "Media Player" with a dropdown menu showing "MS MediaPlayer 6"; "Filename" with an empty text box, "Select File", and "Paste" buttons; "Episode Title" with an empty text box, "Copy from filename", and "Paste" buttons; "Season and episode no." with two input boxes containing "1", and "+" and "++" buttons; "Episode length" with an empty input box and a "Get Length" button; and "Comment" with a large empty text area. On the right side of the dialog, there are four buttons: "Add", "Reset", "New Episode Type", and "Exit".

3.4 Delete old movies

Deleting old movies consists of

1. Check the *Deleted* field in the *Movies* database
2. Delete the movie files

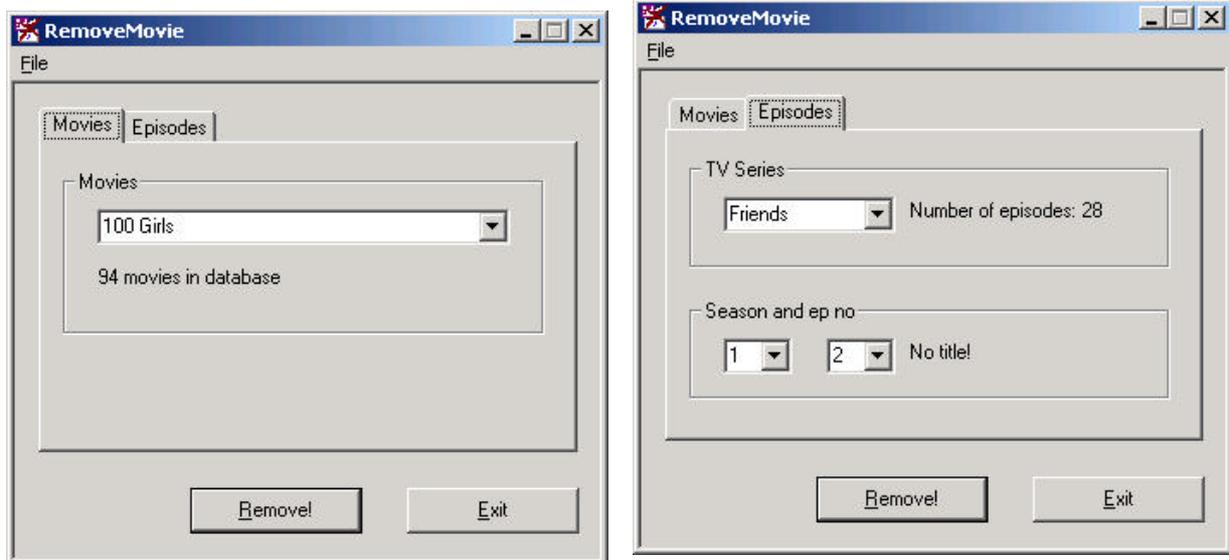
The program *RemoveMovie* can do these steps automatically.

The movies are sorted alphabetically.

Select a movie or an episode from the pull down list and press *Remove*.

The program asks if the movie/episode should be marked as deleted in the database and if the files should be deleted.

Bugs: If the directory where the movie resides contains subdirectories, the program crashes. In that case, manually delete the directory with Windows Explorer.



3.5 Maintenance

Maintenance consists of deleting old files and defragmenting the disks. Diskkeeper is used for defragmentation and is scheduled to run daily between 03.00 and 11.00.

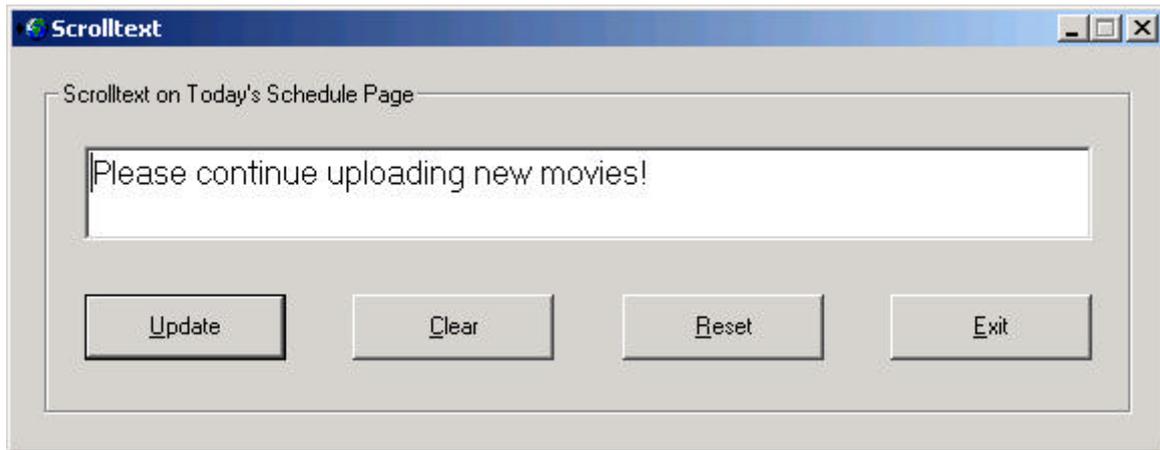
Regular backup of the database is also necessary.

4 Developed Applications

4.1 Program Usage

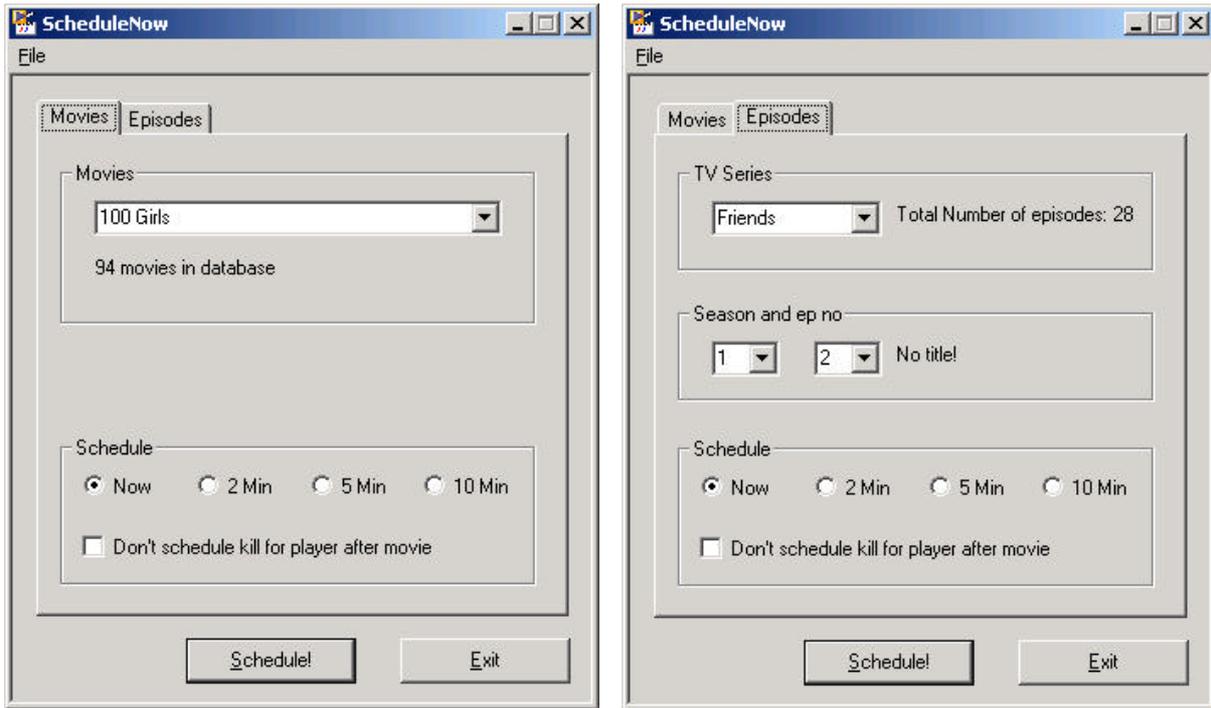
4.1.1 Scrolling text on the Today's Schedule Page

The text that is scrolled at the bottom of the today's schedule page (today.asp), resides in the database table *webpage*. This text can be changed by modifying the database or by using the program *Scroll*. Screen dump of the program



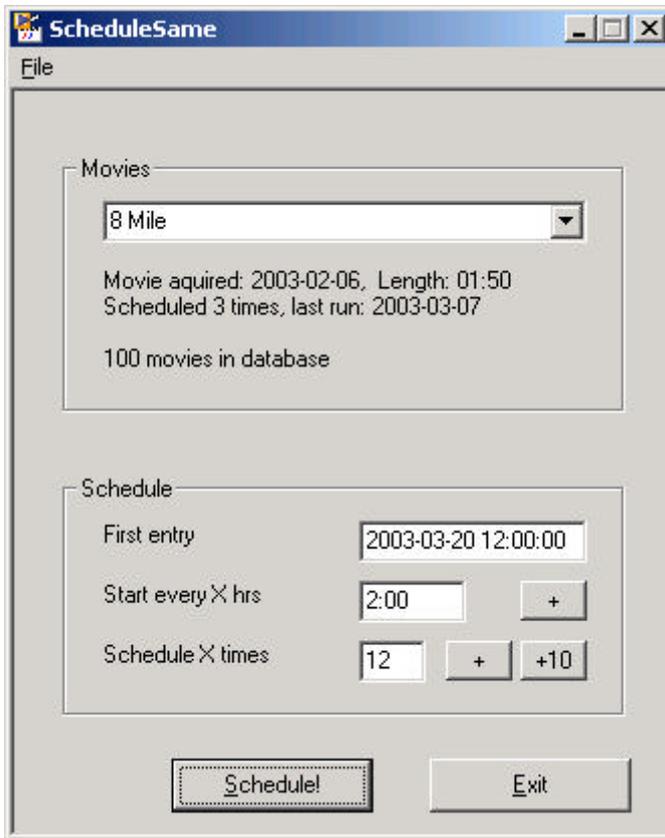
4.1.2 Start a movie now

The program ScheduleNow lets you start a movie, or episode now or in 2,5, or 10 minutes. The program also schedules a shutdown of the movie player after the movie (that can optionally be disabled). The shutdown of the media player is necessary to restore the today's schedule page. The movies are sorted alphabetically. Screen dump of the program:



4.1.3 ScheduleSame

ScheduleSame is used for scheduling the same movie over and over, i.e. for the *House Party* movie.



4.1.4 Other Programs

4.1.4.1 Scheduler

The *scheduler* program is used to create *Windows tasks* for the scheduled movies. The program is scheduled to run daily at 11.00.

The program also schedules extra events for each movie by reading the *Events* table in the database. The following entries from the events database are scheduled:

- trailer_before_movie
- run_before_movie
- run_after_movie

The *offset* entry specifies how many minutes before and after the movie the event is scheduled. *Command* and *Param* specifies the command and parameters to execute. *Trailer_before_movie* is scheduled with the same player as the movie and don't use *param* entry.

There can be multiple *run_before_movie* and *run_after_movie* but only one *trailer_before_movie* (if there is more than one the first is used).

4.1.4.2 Schedep

The *schedep* program is scheduled to run daily and creates the playlist for LunchTV.

4.1.4.3 Runatbootup

The program *runatbootup* is executed every time the computer boot up. It is place in the Startup folder

The program searches the Events database table for *runat_bootup* entries; these are scheduled *Offset* minutes from now. Typically the program should launc Internet Explorer in kiosk mode with todays schedule in two minutes, to ensure that the computer is finished booting up so IE is put in foreground.

The program also adds the date and time to the *Bootlog* table. This table is used by the *moviecrash.asp* script to list movies that have crashed the server.

4.2 Summary of developed programs and scripts

4.2.1 User interface programs

4.2.1.1 *ScheduleMate*

Visual Basic program to schedule movies.

4.2.1.2 *AddMovie*

Visual Basic program to add new movies to the database.

4.2.1.3 *RemoveMovie*

Visual Basic program to remove movies from the database and from the disk.

4.2.1.4 *ScheduleNow*

Visual Basic program to start a movie now or in 1,5 or 10 minutes and schedule shutdown of the movieplayer after the movie.

4.2.1.5 *Scroll*

Visual Basic program to change scroll text on today's schedule page. Modifies the *Webpage* database table.

4.2.2 Background programs

4.2.2.1 *Runatbootup*

Visual Basic program that is executed at bootup. The program schedules events from the Events database table that should be run at bootup.

4.2.2.2 *Scheduler*

Visual Basic program that schedules today's movies in *Windows tasks*. The movies are scheduled by executing the *at.exe* program. *At.exe* can only schedule events for the next 24 hours, i.e. no date can be specified.

4.2.2.3 *Schedep*

Visual Basic program that schedules TV episodes for lunch TV.

4.2.3 Webserver applications

The web server uses the following active server pages scripts.

4.2.3.1 *Today.asp*

Page that shows today's scheduled. This page is designed to be showed in Internet Explorer kiosk mode between the movies. At the bottom of the page a scroll text is shown, this text is retrieved from the *webpage* database table.

4.2.3.2 *Schedule.asp*

This page shows the scheduled movies for today and onward.

With the parameter *when=-5*, the previous five days displayed instead.

4.2.3.3 *Movies.asp*

Displays the movie database.

`Movies.asp?option=all`

Shows current and deleted movies

`Movies.asp?option=deleted`

Shows only deleted movies.

`Movies.asp?option=comments`

Shows movies with comments.

The sorting order is specified with the *sort=* parameter. Possible values are *MovieTitle*, *M.Subject*, *Rating*, *Length*, *LastRunTime*, *Aquired_Date*, *Scheduled_Counter*.

4.2.3.4 *Movies-simplified.asp*

Shows a simplified version of the movie database.

4.2.3.5 *Episodes.asp*

Shows TV episodes in the database

4.2.3.6 *Moviecrash.asp*

Shows movies that have crashed the server. This is accomplished by checking for entries in the *bootlog* database table that occur between a movie start and end time.

4.2.3.7 *Download.asp*

Page with login information for the public ftp servers. There is also information on the amount of free upload space on the server.

This page should be considered as private

4.2.3.8 *Admin.asp*

Page with links for the administrators of the video server

Links to pages with

- Java SSH login
- Java VNC login
- Logs for ftp and web-server

This page is only intended for the administrators.

5 Configuration

5.1 The Computer

The computer was bought in April 2001 and has the following configuration.

Processor	Pentium III 750 PC100 FCPGA
Mainboard	ASUS CUV4X-E
Hardisk1	IBM 75 GXP 60 GB
Hardisk2	IBM 60 GXP 60 GB
RAM	2 x Mosel SDRAM 128 MB PC133 7ns CAS 3
Video card	Matrox Millenium G450 32MB Dual Head
Sound card	Creative Sound Blaster 128 Value PCI
Network card	3COM 3C905C-TX-M
Floppy drive	ALPS 1,44 MB
Casing	Demko Midi Tower ATX

5.1.1 Matrox Millenium G450 video card

The Matrox card is used because it has the dual head function. This means that the TV-out is independent of what is shown on the desktop. The card is configured to use the DVD-max and clone features. The TV out normally displays the contents of the desktop but when a video stream is started it is shown in full screen.

Unfortunately there are some bugs with the TV out.

1. The vertical resolution of a DivX movie must be divisible by 32; this can be fixed with the DivXG400 program (or more precisely codec)
2. Playback on PAL TV's are sometimes jerky, this is mostly noticeable when the camera sweeps over the scenery

5.2 Rotary Cable TV network

The TV out on the video-server is connected to one of the modulators on the Rotary cable TV network. (A modulator modulates a signal to a specific radio signal that could be transmitted, fr.tv is currently modulated to the channel **S14**)

Since both the cable TV network and the video-server are connected to ground we get the problem with a dual ground loop. In this case it results in a 50Hz buzz on the sound channel, this can be solved in two ways

1. Separate the server from the cable TV-network with capacitors or 1:1 transformers.

2. Removing the Video-server own protection ground.

If alternative two is used the monitor must be unhooked from the video-server when it is not used or the monitors ground removed as well

Alternative one is preferred; currently alternative two is used (which unfortunately is illegal).

5.3 Directory Structure

The system runs Windows 2000 workstation, which is installed, on drive C. The swap file is located on drive D, the cluster size is set to 32K to minimize disk fragmentation. Backup of all installed programs are kept on drive D. Movies are located on drive F and G.

C:\	Windows installation Drive
C:\InetPub	Web server root
C:\Documents and Settings\LogFiles	Log files for FTP- and Web server
C:\Documents and Settings\Moviedb	The access movie database
C:\Documents and Settings\ftp_root	FTP root folder
D:\Sourcecode	Source code for developed programs
D:\Appz	Copy of all installed programs
D:\System	Copy of system disks and CD's
D:\Win2000	Copy of Windows 2000 CD
D:\Win98	Copy of Windows 98 CD
E:\	Windows swap file
F:\Movies, G:\Movies	Movie locations
F:\Upload, G:\Upload	Public upload directories

5.4 Databases

5.4.1 Database layout

5.4.1.1 Movies

The movie database

Video	Movie Title	Deleted	Rating	Subject	Length	Aquired_Dc	imdb	Filename	Player	LastRuntime	NextRun	Comment	Scheduled_Count
1	American Pie	<input checked="" type="checkbox"/>	7.0	Comedy	01:35	2001-03-20	0163651	F:\movies\American Pie\FI MS MediaP		02-01-19 14:00:01			6
2	Fight Club	<input checked="" type="checkbox"/>	8.5	Action	02:14	2001-03-20	0137523	F:\movies\Fight Club\Fc.m3 MS MediaP		01-12-16 16:30:01			4
3	The Matrix	<input checked="" type="checkbox"/>	8.5	Action	02:13	2001-03-20	0133093	F:\movies\The Matrix\The M3 MS MediaP		01-11-24 18:00:01			2
4	Gladiator	<input checked="" type="checkbox"/>	8.2	Action	02:35	2001-03-20	0172495	F:\movies\Gladiator\gladst MS MediaP		01-11-11 14:00:01			3
5	Getaway in Stockholm	<input checked="" type="checkbox"/>	--	Docume	00:21	2001-03-20		F:\movies\Getaway in Stoc MS MediaP				Homevori	0
6	X-Men	<input checked="" type="checkbox"/>	7.5	Action	01:44	2001-03-28	0120903	F:\movies\X-Men\X-men3 MS MediaP		01-11-18 18:00:01	8:07:00		7
7	Toy Story	<input checked="" type="checkbox"/>	7.9	Animati	01:32	2001-03-28	0114709	F:\movies\Toy Story\Toy S MS MediaP		01-09-29 18:00:00			4
8	Snatch	<input checked="" type="checkbox"/>	8.1	Thriller	01:33	2001-03-29	0208092	F:\movies\Snatch\Snatch.C MS MediaP		02-02-10 14:00:01			5
9	Red Planet	<input checked="" type="checkbox"/>	5.5	Sci-Fi	01:46	2001-04-01	0199793	F:\movies\Red Planet\red p MS MediaP		01-11-23 18:00:01			2
10	What Lies Beneath	<input checked="" type="checkbox"/>	6.8	Thriller	02:10	2001-04-01	0161081	F:\movies\What Lies Benea MS MediaP		01-10-31 00:00:01			3
11	Torsk på Tallinn	<input checked="" type="checkbox"/>	7.9	Comedy	01:00	2001-04-03	0283639	F:\movies\Torsk på Tallin MS MediaP		02-02-13 18:00:01			2
12	U-571	<input checked="" type="checkbox"/>	6.8	War	01:56	2001-04-10	0141926	F:\movies\U-571\U-571-1 MS MediaP		02-01-15 20:00:01			6
13	2001: A Space Odyssey	<input checked="" type="checkbox"/>	8.3	Sci-Fi	02:29	2001-04-10	0062622	F:\movies\2001 A Space O MS MediaP		01-12-23 20:00:01			4
14	Bait	<input checked="" type="checkbox"/>	5.7	Action	02:00	2001-04-14	0211938	F:\movies\Bait\Bait.avi MS MediaP		01-10-12 20:00:01			4

Fältnamn	Datatyp	Beskrivning
VideoCollectionID	Räknare	
MovieTitle	Text	
Deleted	Ja/Nej	
Rating	Text	
Subject	Tal	
Length	Datum/tid	
Aquired_Date	Datum/tid	
imdb	Text	
Filename	Text	
Player	Tal	
LastRuntime	Datum/tid	
NextRunTime	Datum/tid	
Comment	Text	
Scheduled_Counter	Tal	

Fältegenskaper

The field Subject is linked to the Subject table, Player is linked to the Players table

5.4.1.2 Schedule

The schedule for movies

Schedule_id	Film_ID	Schedule_Time
995	Moulin Rouge	2002-04-15 21:30:01
996	High Heels	2002-04-16 00:00:01
997	98	2002-04-16 18:00:01
998	166	2002-04-16 19:30:01
999	A Beautiful Mind	2002-04-16 22:00:01
1000	Versus	2002-04-17 00:30:01
1001	173	2002-04-17 18:00:01
1002	LOTR: The Fellowship of the Ring	2002-04-17 20:00:01
1003	A Beautiful Mind	2002-04-17 23:00:01
1004	271	2002-04-18 01:30:01
1005	Ali G: Bling Bling	2002-04-18 18:00:01
1006	Rat Race	2002-04-18 19:30:01
1007	Amelie fran Montmartre	2002-04-18 21:30:01
1008	153	2002-04-18 23:30:01
1009	195	2002-04-19 01:30:01
1010	Indiana Jones and the Raiders of the L	2002-04-19 18:00:01
1011	Black Hawk Down	2002-04-19 20:00:01

The Film_ID field is linked to the Movies database; numbers refers to movies that are deleted.

5.4.1.3 Players

Contains info about the different media players

ID	Player_Path	Player	Process_Name
1	C:\Progra~1\WINDOW~3\mplayer2.exe	MS MediaPlayer	mplayer2.exe
2	C:\Progra~1\BSplayer\bplay.exe	BSplayer	bplay.exe
3	C:\Progra~1\THEPLA~1\ThePlaya.exe	The Playa	theplaya.exe
4	C:\Progra~1\CyberL~1\PowerDVD\PowerDVD.exe	PowerDVD	PowerDVD.exe
*	(Räkna)		

5.4.1.4 Subject

Contains list of movie genres

ID	Subject
1	Comedy
2	Drama
3	Action
4	Thriller
5	Horror
6	Sci-Fi
7	Documentary
8	Promotional

5.4.1.5 Webpage

Contains the text that is scrolled on the Today's schedule web page.

num	scroll1
1	This text scrolls on the webpage!
(Räknare)	

5.4.1.6 Episodes

Contains database of TV series episodes.

EpisodeID	EpisodeType	EpisodeName	Season	EpisodeNumber	Length	TimesShown	Player	FileName	Comment
1	Jackass		1	1	20:54:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
2	Jackass		1	2	20:43:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
3	Jackass		1	4	21:16:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
4	Jackass		1	3	20:38:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
5	Jackass		1	6	20:50:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
6	Jackass		1	7	20:34:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
7	Jackass		2	2	21:57:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
8	Jackass		2	3	21:02:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	
9	Jackass		2	4	19:56:00	3	MS MediaPlayer	F:\TV\JACKASS\Jackass - s	

5.4.1.7 EpisodeType

List of TV series

TypeID	Type
1	Jackass
2	Futurama
3	Simpsons
4	Friends
* (Räkna)	

5.4.1.8 Events

Contains miscellaneous system info that is used by some programs (scheduler, runatbootup).

id	Name	Desc	Command	Param	Offset
7	reboot		"C:\Program Files\Pstools\psshutdown" -no		
8	ie_today		"C:\Program Files\Internet Explorer\IEXPLO		
9	kill_ie		"C:\Program Files\Pstools\pskill" iexplorer		
10	kill_winamp		"C:\Program Files\Pstools\pskill" winamp		
15	kill_mplayer2		"C:\Program Files\Pstools\pskill" mplayer2		
16	scheduler		"C:\Program Files\schedshort\schedshort.e		
19	kill_cmd		C:\Program files\Pstools\pskill.exe		
20	runat_bootup		"C:\Program Files\Internet Explorer\IEXPLO		2
22	at_cmd		at.exe		0
23	trailer_before_movie		F:\TV\runboth trailers.m3u		1
* Räkna)					

5.4.1.9 Bootlog

Contains date and time for system startup.

id	boottime
370	03-25 05:53:25
371	03-25 21:53:38
372	04-04 20:11:34
373	04-06 17:06:56
374	04-06 17:12:20
375	04-06 17:36:34
376	04-06 17:47:30
377	04-07 11:33:13
378	04-07 20:45:32

5.4.2 ODBC and Openlink

All programs and .asp script access the database through ODBC connections. This offers the maximum flexibility and the option to switch to a dedicated database server.

ODBC are set up through: **Control Panel/Administrative Tools/Data Sources (ODBC)**

ODBC Data Source Name (DSN): **movieODBC**

Database file location: **C:\Documents and Settings\moviedb\moviedb.mdb**

Openlink is a software that allows ODBC resources to be shared over a network, it consists of server and client part.

5.5 Network

These network configurations should be used for the video-server. Dynamic IP (DHCP) could also be used.

Setting	Value
IP-nr	192.168.5.11
Name	video-server.fr-rotary.com
Netmask	255.255.255.0
Default Gateway	192.168.5.1
DNS	192.168.5.1
SMTP server	192.168.5.1
Windows Network Name	VIDEO-SERVER
Windows Network Workgroup	INMASKIN

The video-server resides on an IP-masqueraded network behind IN-maskinen. This means that the computer is not directly accessible from Internet. To enable remote access to the video-server, the following port-forwarding is set up on IN-maskinen according to the table below.

Service	TCP Port	
	Video-Server	IN-Maskinen
FTP	21	2122
WWW	80	81

VNC	5900	5920
Openlink	5000-5003	5000-5003

To access the Video Server's FTP, connect to IN-maskinen (193.11.234.4) port 2122. The IP-masquerading is the reason why passive FTP transfers don't work on the Video Server.

IN-maskinen is firewalled so connections to the video-server is only allowed from within Rotary (IP no. 193.11.234.* and 193.11.235.*)

5.6 IN-maskinen

IN-maskinen is a Linux system that provides server functions and network access to the Video Server and Rotary Pub.

The account used by the video server is named *video*, the home directory for this account is `/home/video`. The home directory on a Unix system can also be written as `~/` or `~video`, which is used below.

Remember that text files under Unix use another linefeed than Windows, i.e. they are not compatible. If you edit any text files on IN-maskinen from the video server make sure they are saved in with Unix linefeeds, the Textpad program can handle this.

5.6.1 Shell login

It is possible to login to IN-maskinen with SSH from anywhere, telnet login is only allowed from Rotary.

Changing password is done with the *passwd* command/program

5.6.2 Email

The video account has an email that is intended for anyone who wishes to communicate with the administrators; it is also used by some programs to send warnings about the server's status. The email is frrtv@fr-rotary.com and video@in.rotary.studenthem.gu.se

The administrators should put their real email addresses in the file `~/forward` with one address per line; so they receive the mail intended for the *video* account..

5.6.3 Public Upload FTP

The upload area for the video-server is located on IN-maskinen to reduce the load on the server and enable passive FTP transfers.

The ftp server allows anonymous uploads but not downloads. Anonymous users are logged in to the directory `/home/ftp` and are able upload files to `/home/ftp/upload`. To restrict anonymous users to a specific directory is a security measure.

To simplify for the video user there is as *sym-link* to the upload directory in `/home/video/upload`

5.6.4 Windows Network

The files owned by video can be accessed through windows networking from the video-server and from Rotary. The resource to connect to is `\\in\video` with the username *video*. If the name don't work it can sometimes be necessary to use the IP instead, `\\192.168.5.1\video` or `\\193.11.234.4\video` depending on whether you are connecting from the video-server or from Rotary.

The Windows networking password and the Unix password do not necessarily be in sync. The Unix password is set with the *passwd* command and the Windows networking password is set with *smbpasswd*

5.6.5 Online Script

There have been frequent problems with the Video-Server hanging during movie playback. In order to deal with this problem a perl script has been developed. The script checks if the video-server is running every five minutes (through a cron job). If the server is down on two consecutive runs (i.e. the video-server doesn't answer to ping), it is considered to have crashed. A warning is then sent by email to video@fr-rotary.com, the server is then rebooted and the date and time is logged to `~/crashlog.txt`.

To disable rebooting of the server, create the empty file `~/dont_reboot`

The rebooting of the server is accomplished by using a 230V / 5V relay. The relay is wired to the video-servers power cable and is normally closed (power is let through). When the coil voltage is set to 5V power is cut. The relay is connected to data pin zero on the parallel port on IN-maskinen. By setting pin zero to one, waiting ten seconds and then setting it back to zero; the video-server is rebooted.

The programs for setting and unsetting pin zero on the parallel port are written in C, (`on.c` and `off.c`). In Linux only the root user is allow to do direct bit manipulation on the parallel port, so the programs are set to execute as root. This means that the files are owned by root and can't be changed by the *video* user

The reboot relay is currently not used.

<code>~/scripts/online.pl</code>	The online script
<code>~/scripts/dont_reboot</code>	Create this file to stop automatic reboot
<code>~/scripts/video-server-is-down_1</code>	Created by the online script if the server is down.
<code>~/video-server-is-down</code>	Created by the online script if the server is down and was down the last

	time, i.e. if video-server-is-down_1 exist
~/scripts/restart.sh	Shell script to reboot the server, runs the two below programs.
~/scripts/on	Cuts power to the server, executable
~/scripts/off	Enables power to the server, executable
on.c and off.c	Source code for above programs

5.6.6 Cron

Cron is the Unix counterpart to Windows Tasks. As mentioned earlier there are a couple of cron jobs running. Currently there is the online script that runs every five minutes and a script that checks available disk twice per hour. Cron jobs are displayed with *cron -l* and edited with *crontab -e*.

5.6.7 Webpage

The FR.tv web start page is located at IN-maskinen on FR's web account. It is located in */home/fr-http/public/TV*. The directory and files are write-able for the video user, they are also *sym-link*'ed from the directory, */home/video/webpage*.

<i>/home/video/webpage/index.html</i>	Contains a frame that hides the real address
<i>/home/video/webpage/start.html</i>	FR.tv webpage at IN-maskinen
<i>/home/video/webpage/crashlog.cgi</i>	CGI to display the crash log file
<i>/home/video/crashlog.txt</i>	
<i>/home/video/webpage/weblog.cgi</i>	CGI's to display access to the FR.tv webpage and public upload ftp on IN-maskinen.
<i>/home/video/webpage/ftplog.cgi</i>	
<i>/home/video/scripts/chsp.pl</i>	Perl script that runs every 30 min and writes the amount of free space to <i>free_space</i>
<i>/home/video/webpage/free_space</i>	

5.6.8 VPN

IN-maskinen runs a VPN-server (Virtual Private Networking). The VPN enables a remote user to be connected to the same network as the video-server, i.e. get an IP-nr on the 198.168.5.x network. With VPN you are able to remotely mount the Video-servers Windows Networking shares.

The VPN server uses PPTP (Point-to-Point tunneling protocol) without encryption. Drivers for PPTP are supplied with Windows. The Windows driver defaults to refuse unencrypted connections, which have to be turned off.

The VPN username and password is not the same as the Video login on IN-maskinen

5.7 Installed Programs

The following public available programs are used on the Video-Server

5.7.1 Operating System

Microsoft Windows 2000, Service Pack 3

Microsoft Internet Information Services (Microsofts webserver).

Microsoft Windows 2000 Resource Kit

5.7.2 Multimedia programs

5.7.2.1 Microsoft Media Player

Media Player

5.7.2.2 BSplayer

Media Player

5.7.2.3 PowerDVD 4.0

DVD, VCD, SVCD and Media Player.

5.7.2.4 DivXG400

Fixes some bugs with the Matrox G450 TV-out.

5.7.2.5 DivX AntiFreeze

Fixes some freezes with DivX movies,

5.7.2.6 Divfix

Rebuilds the index for a DivX file.

5.7.2.7 Nimo Codec Pack 5.0 build 7

Contains codecs, media players and utilities

5.7.3 System Programs

5.7.3.1 Diskkeeper Workstation 7

Disk defragmentation utility

5.7.3.2 Partition Magic 7

Tool for resizing disk partitions

5.7.3.3 WinImage 6.0

Lets you extract files from CD images.

5.7.3.4 Daemon Tools 3.02

Makes it possible to mount CD images as a drive letter.

5.7.3.5 Speedfan

Provides system voltage, temperature and fan monitoring.

5.7.3.6 Startup Control Panel

An add in to the control panel that makes it simple to control what programs are autosterted.

5.7.3.7 PageFile Defrag

Program that defragment the swap file and system registry on boot up

PStools

Include some command line tools for process management like, pskill, psshutdown and pslist.

5.7.4 Network Programs

5.7.4.1 *Serv-U FTP*

FTP server.

5.7.4.2 *Vshell 1.1.1*

SSH server.

5.7.4.3 *VNC 3.3.3*

VNC remote control server.

5.7.4.4 *OpenLink Server 4.1*

ODBC database server

5.7.4.5 *WebWasher 3.0*

Web server proxy for stripping ads and popup windows. Used for parsing IMDB from AddMovie program.

5.7.4.6 *Wget*

Command line URL retriever.

5.7.5 Misc

5.7.5.1 *TextPad*

Notepad replacement. Supports multiple files and Unix textfiles

5.7.5.2 *UnixDos*

Provides common Unix command line utilities like cat, ls, grep.

5.7.5.3 CopyPathToClipboard

Adds the *Copy Path To Clipboard* for the file in Windows Explorer

5.7.6 Utilities

5.7.6.1 Drag and file

File manager

6 Closing Remarks

6.1 Conclusions

The Rotary FR.tv should be considered as an evolving project, this paper only describes its current status.

6.2 Further Works

The following features are examples of what remains/could be implemented on the vide server.

Episode Scheduling

The ability to schedule TV episodes for the regular schedule. Could be implemented in many ways.

Command Broker

The ability for the Video Server to receive commands like start movie, delete movie etc. through TCP/IP. Requires a server and a client part.

Web applications

Web applications for common tasks that are executed through VB programs, like add, remove and schedule movies,

7 References

App. A