RLM 2.6

Working document of the System operators manual

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What this manual covers

This manual is about how to configure and use the RLM software. It covers what the RLM system is, how do setup and configure RLM in different ways. See the "Users Manual" form information of how to operate the system from your radio.

THIS IS JUST THE BEGINNING OF THE SYSOP MANUAL. I'M WORKING ON IT…

Installation and first time start up.

When you have downloaded you RLM zip file you unzip the files into a folder on your hard disk. This folder is normally C:\RLM but can be named or placed as you choose. RLM can also be installed to a diskette but then, you cannot use the voice functions. When you have uncompressed the files you also get some folders. In this folders you place the Soundpack files that you also have downloaded. These files are available in both English and Swedish.
You start RLM by just type RLM in DOS and press enter. You will se some things loading and then it stops and you must type a character. This is only a reminder to registrate RLM, and will not be shown if you have a license-file installed.
Now RLM has started up and a sample configuration is running. Here you can press F3 to get in to the "Key input mode". Now you can hit SPACE key to activate the repeater and then enter some DTMF command numbers to simulate that someone is using RLM from radio interface.

RLM technical system description

RLM is a short for Repeater, Link and Mail server and is an advanced repeater controller. RLM can also be used as a stand-alone voicemail server. RLM has been developed under 6 years and is programmed by SM2UMH Peter Hansson living in North Sweden.

Normally a repeater controller consists of a logic board that controls repeater close timeouts, beeps and maybe link radio steering. This controller board can be very simple or a very advanced, micro controller based model with synthetic speech and advanced features.

RLM is not based on a controller board. It is a PC software that controls repeater radio and links via a simple interface. All the functionality is in the PC program.
This makes it very flexible and RLM I designed so it can fit an almost any environment.
The repeater administrator can enable or disable functions. There is also a possibility to write new DTMF commands for new functions and much more.

As a RLM user (repeater user) you get much more value from your repeater.
You will be able to…

- Leave personal voice messages to your ham friends
- Record bulletins that affect all users of RLM
- Test recording for modulation check
- Check in and outdoor temperature with min/max functions
- Check Repeater / User / Voicemail statistics.
- Select link channel and connect to other repeaters
- Check time and date
- Send CCIR and DTMF
- Built in CW trainer

And much more…

More info about RLM can be found at the RLM homepage or in the "Users Manual".
http://vbk.campus.luth.se/~rlm or send me an email at rlm@vbk.campus.luth.se.

Software development information

RLM is written in Borland C++ 3.1. It is made of 12000 rows of code that i have been working on since 1994. I have tried to keep the .EXE file as small as I can to make it possible to have TSR´s and network drivers loaded in memory. This makes some setup menus functions not all safe for all kind off error entering.

Operating system

RLM is DOS software. As I now, there are no limits in what version of DOS you use but I now RLM works fine with MS-DOS 6.0 and up plus Win95, 98 in DOS mode.
I have made this software for DOS because repeater systems are often placed in not so easy accessible places. If a computer hangs and restarts automatically, you cannot be sure that your Windows 98 will start up by it selves. There may be some strange dialog box showing on the screen that you must press OK on to continue or something else. However RLM works in Windows 95 and 98 environments but there can be some strange timing problem when sending CW and other tones.

Files structure

The filestructure in RLM is one single program catalogue that can be named to whatever you want. Then there are 3 voice file catalogues that also can be named and placed as you like. However I have a standard catalogue structure that I use and that will be described here.

The Explorer snapshot at left shows the normal file structure. It starts with C:\RLM with subdirectories Doc, No_ramd, Ramdisk and Workfile. All these directories except for Doc are for sound files. I will describe the system files in detail below.

This is the files that is used by the RLM software. These files must be in the same catalogue as the RLM.EXE file. Normally you place these files in C:\RLM

RLM.EXE The software. You start RLM in DOS with just typing RLM and press Enter. In Windows you double-click in this file.

DATA.RLM Binary data file containing repeater and voicemail statistic counters. It also keeping the name of the 5 different setup´s and some other frequently changed data. You can delete this if you want to reset the counters.

USER_DB.RLM The RLM users database containing users login code, name, statistics, voicemail-pointers and more. It also keeps track of all bulletins. Deleting this will erase all user-data.

SETUP_x.RLM This file contains all the settings that you make in the setup menus. There are five setupfiles so that you can use five different configurations for different purposes.

HELPTEXT.RLM This is a textfile that can be viewed in a text editor. When you run RLM you can hit F10 at any time to get help from this file. It is also used when configuring via telephone modem.

COMMAND.CFG You edit this file with a normal text editor such notepad or DOS Edit. It contains your own made DTMF commands configuration. Read more in the special chapter about programming DTMF commands.

REPORT.CFG You edit this file with a normal text editor such notepad or DOS Edit. This file is a template for creating a report page of RLM statistics. Read more in the chapter about configuring the report generator.

User parameters

In RLM all users has their personal parameters of how RLM will respond and behave to you. You activate your personal user parameters when you log in. User parameters control the time on different timeouts or if questions should be repeated I you don't answer in time.
Read more about this in the sections about command 5301 and 5302.

Statistics

RLM does a lot of logging of all that's happening. It logs repeater, user, weather and link usage to text files so it can be used in Microsoft Excel or other program to make curves of how the system is used. It also have a statistics database file that information like how many times a user has logged in and when the last time was and how many times the repeater has opened today or the total runtime of repeater is stored. There are several DTMF commands in RLM to get this information.

Date and time

RLM has a kind of Scandinavian way to look at dates. The date format is YY-MM-DD. So if you have to enter the date 4th of January 2000, you enter 000104. However the output speech of dates is configurable in many different ways.
The time is in the format HH:MM. You can configure RLM to work with 24-hour or 12-hour clock.

Programming your own DTMF functions

Rules

You can make your own DTMF commands in RLM. For that you using a kind of scripting language described here. All your own commands must be in a text file called COMMAND.CFG that is located in the RLM program directory. You edit the file with a standard text editor such as Notepad or EDIT in DOS. If you are in the 'D' menu in set up and you have a program called EDIT.COM in your RLM directory, you can edit directly from the setup. The commands are not stored in Ram, so it is interpreted when the command is run. Therefore you must always test a new command so you now it works.

When you create a new DTMF command it will be automatically added to RLM´s access list so you can set permission on the command. When the command is added to the access list it gets the default 'A' permission. Enter the 'D' menu in the setup to change.

You must be very precise when you edit in the COMMAND.CFG file and follow the syntax of the commands exactly as described below. You can not skip a value or enter illegal values. In the best case, RLM will give you an error message but if you have a big error, RLM could hang.

This is the rules for writing DTMF commands. Follow these instructions exactly when you write your functions. Do not skip a line or enter wrong values.

- Your functions must start with DTMF function number. (eg DTMF #220)
- A DTMF command consists of maximum 4 characters and the allowed characters is 0-9, A, B, C, D, # and *. The DTMF functions in COMMAND.CFG do not have to be in any particular order.
- You cannot use a DTMF number that RLM already has as a built in command.
- All commands and values are separated by a SPACE (" ").
- You can use upper or lowercase characters as you wish.
- If you use the CW command, use _ (underscore) as a space in the CW text (eg. Peter_Hansson)
- If you want to write a "REMark, you use '(apostrof) (eg: DTMF 1234 ' This is a good function)

Examples

```
'Examples allowed syntaxes
CW peter 100 1000          ' Keying "peter" in 100cpm, 1000Hz
CW peter_allan 100 1000    ' Rem comment  Use  _ as a space in CW-text

Examples of not allowed syntax
CW peter 100,1000          'Comma not allowed as a separator (use SPC ," ")
CW peter 100               'Missed value (frequency)
CW peter allan 100 1000    'Use _ as a space in CW (peter_allan)
CW peter 120 500'Rem row, a space is missing before the '

Example of a complete function
DTMF 1234                  Dtmf function 1234 start
PLAYHD hello               Playback the sound-file "hello.voc" from the HD
directory
MELODY cdef 50             Plays the melody "cdef" with 50ms tone length
PLAYUSER 1                 Playback the user number 1:s call.

Example of a question function
DTMF 77                    Start of command 77
PLAYRAM QUEST1             Asking "Is this okay?"
ASK                        Wait for DTMF input  (1 or 0)
SPELL OK                   Spelling "O","K" if the answer is 1
TONE 100 800               Send tone
ELSE                       IF the answer is 0.
CW noll 100 600            Key NOLL in 100 ch/min with 600Hz tone
```


Listing of all functions/commands.

```
PLAYHD filename            Playback a sound-file from the HD-directory
PLAYRAM filename           Playback a sound-file from the RAMDISK-directory
PLAYUSER filename          Playback a sound-file from the WORKFILE-directory
RECORD filename            Playback a sound-file from the WORKFILE-directory

RUN filename               Run a batchfile (.BAT) that is located in the RLM
directory
EXIT                       Shutdown RLM.
WARMBOOT                   Shutdown and reboot the RLM computer
RUNDTMF func               Run another DMTF function (Only the built in)

ASK                        Wait for DTMF-input.
                           If the answer is = 0 the command-lines after ELSE is processed,
                           If not the lines before ELSE is processed.

IF flag                    Runs a question about status of a RLM flag
(variable).
                           If the answer is  = negative, the lines after
                           ELSE is processed, If not the lines
                           before ELSE is processed.

            Flag's ..... The answer is YES if...
            RPTOPEN      repeater is open
            LINKOPEN     repeater and link is open
            MONITOR      the monitor line of the link-radio receiver is active
            ALARMACTIV   burglar alarm is activated
            ALARMTRIGG   burglar alarm is trigged
             COMFLAG     If the data from the comport matches the data specified
                                 in the CHKCOM command


CW text speed freq         Keying "text" with "speed" characters per minute and the frequencey
                           "freq" in HZ
TONE length freq           Sends a tone in "length" milliseconds with "freq" Hz.
FMSOUND bank freq          A FM-synthesizer sound with frequency "freq"
MELODY notes length        Playing melodically notes  eg: MELODY cdeCDE 40 (ms)

SPELL text                 Spelling text eg: SPELL abc
DELAY time                 Wait for time in milliseconds

SETPORT num                Set the port "num" to ON
RESPORT num                Set the port "num" to OFF

SENDCOM text               Sends text on COM-port for link-radio (Do not use spaces)
CHKCOM text                Waiting 1sec. for incoming data on COM-port and compare this data
                           with "text". If a match, COMFLAG = YES.
                           See the IF flag section above.

STARTRPT                   Starting (activating) the repeater
CLOSERPT                   Closing the repeater

LINK ALT NOT               On/Off link  BRK=ignore if the channel is busy
     ON  BRK               ALT=Alternate On/Off
     OFF

MONITOR ALT                Off/On link monitor
     ON                    ALT=Alternate On/Off
     OFF

LOADCONFIG num             Loading setup (1-5)
```


Report generator

Description

RLM has a simple built in report generator. Every night at 12:00, a report page (REPORT.LOG) in text format will be generated. This could contain info on hard disk space, who have mail, repeater activations and more. The idea for this report is if you have your RLM computer in a network and it communicating with a packet BBS or an Internet connected system. You will then have the possibility to get daily statistics and info about RLM mailed to you or all repeater users automatically.

You can also view the report by hitting the F6 key from RLM´s mainscreen.
To turn of or on the creation of REPORT.LOG file, go in to the setup and enter the L menu.

How to configure

This is an example of how a report could look like

```
Today, AX2ZZY have been activated $1 times and the runtime were $4 minutes.
These users have voicemail: $14
There are $30 megabytes free space on the harddisk.
```

As you see, you use variables to insert some RLM info in your text. This makes it very easy to format the report file exactly as you want.

The list of variables for use in the REPORT.CFG file. Use the $ sign before variable number.

REPEATER

1. Number of times the repeater been activated today, 2. This month, 3. Totally
4. Repeater runtime in minutes today, 5. This month, 6. Totally
7. Number of repeater activations without identification today, 8. This month, 9. Totally
10. Number if DTMF sending without identifying first today, 11. This month, 12. Totally

MAILBOX

13. List the last 5 persons logged in
14. List of those who have voicemail
20. Number if active messages, 21. In megabytes, 22. In minutes
23. Number if in-active messages, 24. In megabytes, 25. In minutes
30. Megabytes free on the hard disk.
31. Recording time left on the hard disk
40. Number if DTMF unlocks today, 41. This month, 42. Totally.

OTHER

98. Todays date
99. The time

Soundfiles

Description

RLM uses voice files in Sound Blasters .VOC format. This is the big voice file standard used before Windows and WAV file became common. All this files are used and combined to make RLM "talk". I have with my sisters help recorded these files in both the Swedish and English language. You have all the rights to record new files for your own language. I can recommend a shareware program called "CoolEdit" that can save .VOC files. This software is downloadable from the Internet.
The files should be recorded in 8kHz sample rate, 8bit MONO.
RLM also have a build in recording function (F7) accessible from the main menu.

Voice file catalogues

There are two different catalogues that RLM use for voicefiles. One is called RAMDISK and the other NO_RAMD. This is because if you use a slow computer (286), you can load the RAMDISK files to a ramdisk to speed up the files loading when RLM playing. In this RAMDISK catalogue you have frequently used files such as numbers and standard phrases.

File list

Below is the complete list of sound files used in the RLM repeater controller software. The contents of the files are described in both English and Swedish.

Frequently used files: (catalog: RAMDISK)

Filename	English content	Swedish content	Mostly used in functions
1_NEWMSG	You have one new message	Du har fått ett nytt meddelande	Login
AT_TIME	at...	Klockan	Time
CODE_ERR	Incorrect usercode.	Fel personkod.	Error
DEGREE	...degrees	…grader	Temperature functions
ENT_CODE	Enter the usercode.	Slå personkoden	
HAVE_MSG	... have mail.	… har fått meddelande.	4
HOUR_AND	… hours and …	… timmar och …	time functions
LOGGED	... has logged in.	… ära nu inloggad.	Login
LOGOUT	You have logged out.	Du är nu utloggad.	0 or auto
MINUS	Minus…	Minus…	Numerical
MINUTE	…minute	…minut	time func.
MINUTES	…minutes	…minuter	time func.
NO_MSGS	There are no messages…	Det finns inga meddelanden	4
NOT_LOGG	You haven't logged in.	Du är inte inloggad	When a command has L status
PAIR	... pairs	… par	For game functions
POINT	... point ...	… komma …	Num
QUEST1	Is this OK?	Är du nöjd?	Standard question
QUEST2	Do you want to continue?	Vill du fortsätta?	Standard question
REC_TO	Recording message to...	Spelar in meddelande till…	3 and others
RECORDED	Recorded...	Inspelat…	2
SAVED_AS	Message saved as number...	Meddelandet sparat som nummer	3
SAY_#	Fence	Fyrkant	Num (#)
SAY_0 - 19	0 to 19	0 till 19	Num
SAY_20 - 90	20 to 90 (20, 30, 40, ….)	20 till 90 (20, 30, 40, ….)	Num
SAY_A - Z	a, b, c, d... (The Alphabet)	a, b, c, d... (Alfabetet)	Alpha
SAY_HUND	hundred	hundra	Num
SAY_TOUS	thousand	tusen	Num
SAY_½	Star	Stjärna	Num (*)

Filename	English content	Swedish content	Mostly used in functions
YEAR	Year…	År…	Date
MONTH1	January	Januari	Date
MONTH2	February	Februari	Date
MONTH3	March	Mars	Date
MONTH4	April	April	Date
MONTH5	May	Maj	Date
MONTH6	June	Juni	Date
MONTH7	July	Juli	Date
MONTH8	August	Augusti	Date
MONTH9	September	September	Date
MONTH10	October	Oktober	Date
MONTH11	November	November	Date
MONTH12	December	December	Date

Not frequently used files: (catalog: NO_RAMD)

Filename	English content	Swedish content	Mostly used in functions
1OR2	To continue press 1, to erase press 2	Tryck 1 för att fortsätta, 2 för att raddera	26
ACT_MSGS	... active messages.	… aktiva meddelanden	9006
ACTMSGMB	...megabytes active messages	…megabytes aktiva meddelanden	9008
ACTIVATE	The mailbox is activated.	Mailboxen aktiverad	DTMF unlock
ALLREDY	The mailbox is already activated	Mailboxen är redan aktiverad	DTMF unlock
AND	…and…	…och…	
APPLAUSE	"Applause"	“Applåder”	Game functions
BULLETIN	…bulletin	…bulletin	21
BULLFULL	Bulletin memory full	Bulletinminnet fullt	21
BULLSAVD	Bulletin saved	Bulletinen sparad	21
CALCULAT	Calculator	Miniräknare	NOT IN USE
CCIR	Enter the CCIR-code	Slå CCIR-koden	81
CHANGE	would you like to change to…	Vill du ändra till…	5301 (expert/novis status)
CHANNEL	Channel…	Kanal…	36
DATE_IS	Todays date is ...	Dagens datum är…	56
DE_ACTIV	The mailbox is now deactivated.	Mailboxen är nu avaktiverad	DTMF Locking
ENTCODE2	Enter the code...	Slå koden…	Burglar alarm
EXPERT	Expert	Expert	5201, 5301
FROM	From...	Från…	2 + Bulletine func.
FROMDATE	Enter start date in format year-mo-day	Slå in fråndatum I format år-mån-dag	Bulletine func.
HAVE_LOG	... has been logged in ...	…har varit inloggad ..	5203
INAMSGMB	...megabytes inactive messages.	---megabytes inaktiva meddelanden	9009
KIL_LAST	Do you want to erase message to...	Vill du radera meddelandet till…	72
KILLUSER	Do you want to erase the user...	Vill du radera användare…	5304, 9509
LARM	The alarm is now…	Larmet är nu…	For own DTMF func.
LASTBOOT	The system started...	Systemet startades…	9005
LATEST	...last logged in...	…senast inloggad…	5203
LINK	Link…	Länk…	33
LISTUSER	Enter user-number to list from	Välj användar-nummer att lista ifrån.	5202
LOOP	...the loop.	…slingan.	28
MAXTEMP	Maximum temperature is...	Maxtemperaturen är…	63,64
MB_FREE	... megabytes free on the harddisk.	… megabytes ledigt på hårddisken	9003
MIN_FREE	... minutes recording time left.	… minuters inspelningstid kvar.	9004
MIN_T1	Minimum indoor temperature is...	Mintemperaturen inne är…	63
MIN_T2	Minimum outdoor temperature is...	Mintemperaturen ute är…	64
MONITOR	Monitor…	Monitor…	34
MSGS_TO	... messages to ...	… meddelande till…	3 and other
MSGSAVED	Message saved as number ...	Meddelandet sparat som nummer…	3 and other
N_GROUPS	Enter number of charac. in groups of 5	Välj antal grupper om 5 tecken	6001
NEW_BULL	There is a new bulletin, to listen, enter 22	Det har kommit ny bulletin, avlyssna med 22	Login
NEW_FIN	You are now registrated in the mailbx.	Ny användare klar.	5303
NEW_MSGS	...new messages	…nya meddelanden.	Login
NEW_SIGN	Record your callsign.	Spela in din anropssignal.	5303, 5305
NEW_USER	Welcome as a new mailbox user.	Välk. att registrera sig som ny anv.	5303
NO_CHAN	Channel not available	Kanalen är inte tillgänglig	31
NOBODY	Nobody...	Ingen…	
NOT_AVAI	Function not available	Funktionen är inte tillgänglig	When a command has X or S status
NOTIDENT	…didn't identify themselves	…stycken identifierade sig inte	NOT IN USE
NOVIS	Novise	Novis	5201, 5301
NU_USERS	Number of users: ...	Antal användare…	5101
NUM_LOGG	Number of loggins ...	Antal inloggningar…	5104
NUML_TOD	Number of mailbox loggins today: ...	Antal inloggningar idag…	5105

Filename	English content	Swedish content	Mostly used in functions
OFF	…off	…avslaget	
ON	…on	…påslaget	
OP_TODAY	Number of activations today...	Mailboxen har idag aktiverats…	5102 (DTMF unlocks)
PLAY_OLD	Listen to your old messages	Vill du lyssna på dina gamla medd.?	5207
PLAYINFO	Listen to user information.	Spelar upp användar information	5206
PRESUSER	New user registrated: ...	Det har kommit till en ny användare…	Beacon, Login
REC_BULL	If you want this message to be active for one week, press 1, if you want to enter start and stop date, press 2.	Tryck 1 om meddelandet skall vara aktivt i en vecka, Tryck 2 för att själv ställa från och till datum.	21
REC_INFO	Do you want to record your personal information?	Vil du spela in information om dig själv?	5304
REC_OWN	Do you want to record your own file?	Vill du spela in din egen ljudfil?	5307
RPTINFO1	Today, the rpt. has been activated…	Idag har repeatern öppnats…	6502
RPTINFO2	This month, the rpt. has been activated	Denna månad har repeatern aktiverats...	6503
RPTINFO3	Totally, the rpt has been activated…	Totalt har repeatern aktiverats…	6504
RUNTIME1	The runtime is	Drifttiden är…	rpt statistics func.
RUNTIME2	The repeater has been opened for	Repeatern har varit öppen i…	6501
SCANNING	scanning…	scanning…	32
SEL_CHAN	Select channel	Välj kanal…	31
SETSPEED	Enter CW - speed	Välj telegrafi-hastighet	6002
SNOOK	Do you want to listen to other users messages?	Vill du avlyssna andras meddelanden?	5205
SYSOP	You have logged in as system operator	Du är nu inloggad som sysop.	Sysop login
TEMP_IN	Indoor temperature is...	Temperaturen inne är…	61
TEMP_OUT	Outdoor temperature is...	Temperaturen ute är…	62
TEMPLARM	Temperature alarm.	Temperaturlarm	Beacon temp alarm
TESTDTMF	Test DTMF, enter any numbers.	Test DTMF, slå valfria siffror	51
TIME_IS	The time is ...	Klockan är…	55
TIMES	... times	… gånger	
TO	To...	Till…	bulletine
TO_DATE	Enter end date	Slå in tilldatum	21
TODAY	today at...	idag klockan…	5
TONE	Enter tone frequency	Slå in tonfrekvensen	82
USER_LOG	Check how many times a user has been logged in.	Kontroll av hur många ganger en Användare har varit inloggad.	5203
USER_MSG	Check number of messages a user has in the mailbox.	Kontroll av hur många meddelanden en användae har	5204
USERINFO	User information	Användarinformation	5206
USERPARA	Do you want to change your personal parameters?	Vill du ändra på dina användarparametrar?	5302
VB_OPNED	The mailbox has been activated ...	Mailboxen har aktiverats…	5102
WAS_LOGD	Was logged in...	Var inloggad…	5
YOU_HAVE	You have...	Du har fått…	Login

