# RDS Softdecoder

PC software for the decoding of RDS data

Instruction Manual

2008, December

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# 1. Introduction

The 2wcom RDS Softdecoder is PC software for MS Windows and is a real-time logging and decoding software for RDS data. The RDS groups will be provided on an RS-232C port or TCP/IP port of one of the 2wcom RDS decoders:

• 2wcom Monitoring Decoder A20, A10T
• 2wcom Decoder RD20, RD10

The software provides general RDS information and special customer data for RadioText Plus, Traffic Message Channel, Early Warning System and Personal Weather Station.

## Important

| Please read the entire manual before you start to use the software. Keep this manual for future use as it contains important operating instructions. |
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## Explicit definitions

This software is developed for the use with the MS Windows operating system. Its usage is similar to MS Windows. Please see your MS Windows manual for details of windows operations. For necessary mouse operations, please place the mouse pointer on the specified display area and execute the following corresponding action.

| "Mouse click" or "Click" | Single push on left mouse button |
| --- | --- |

Additional notes:

Some functions of the software depend on hardware options and are disabled if the corresponding option is missing. Please contact us if you would like to order a missing hardware option.

Configurations, functions, and specifications may change without notice.

# 2. Manufacturer

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# 3. Software Installation and Command Line Parameter

## Installation of the program files

Embedded use: If you use the RDS Softdecoder as part of A20Lab / A20Config, all program files are usually already installed as part of A20Lab / A20Config (in the same folder). In this case, no further installation is required. Just start the RDS Softdecoder via the main application (A20Lab / A20Config).

Stand-alone use: If you want to use the RDS Softdecoder as a stand-alone application, just copy the RDS Softdecoder folder to your local hard disk (e.g. "c:\programs") and start the exe-file of the RDS Softdecoder.

## Command Line Parameter

If you want to start the software and automatically setup a data connection, you can use the command line parameter.

rdssoftdecoder.exe <com I *tcphn* I *tcpip*> <*portno*> <*hostname* I *ip* I *baudrate*> [NO]

| | |
|---|---|
| 1 | Select type of connection: *com*=RS-232C, *tcphn*=IP-connection by host name, *tcpip*=IP-connection by IP-address |
| 2 | Port number (COM port or IP port number) |
| 3 | Host name or IP address of the Hardware for a IP connection or the baud rate for a RS-232C connection (e.g. "9600"). |
| 4 | By default the data connection will be closed after 3 minutes of no RDS data. If you do not want the data connection to be closed in case of sync loss, use the parameter "NO". |

Example: „rdssoftdecoder.exe tcpip 6667 192.168.14.250"

# 4. Connection

## Connection window - Data connection to the 2wcom RDS hardware

1. Connection is possible by RS-232C or TCP/IP. Connect to a serial RS-232C device by selecting the corresponding [COM-Port] and the [Baud rate] (default: 9600) or connect to an IP remote device by selecting either the [Host name] or the [IP-Address].

2. For a TCP/IP connection, enter now the [TCP-Port] (group-port) on which the device provides the RDS data (Default:6667 (A20) / Fix: 6666 (A10T).

3. Optionally click on [PortLog] to display the data flow between the RDS Softdecoder and the RDS hardware (Fig.4.2).

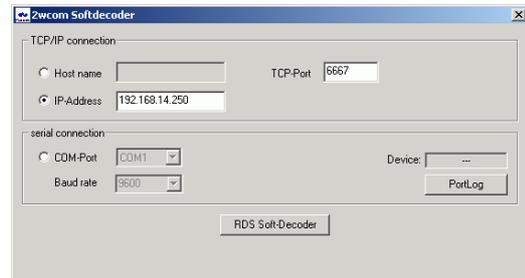4. Click on the [RDS Soft-Decoder] button and in a few seconds the decoder-dialog will appear.



*Fig. 4.1 – Connection window*

Receiving data by connecting to the configuration port of the A20 (default: 6666) instead of the group port (default: 6667) is only possible by using A20 Lab / A20-Config, which will start the RDS Softdecoder.

## Port log - Display and log of transferred UECP frame data

All transmitted data will be logged in the port log dialog if opened before. The UECP-frames will be displayed and can be stored by a mouse-click on [Save].
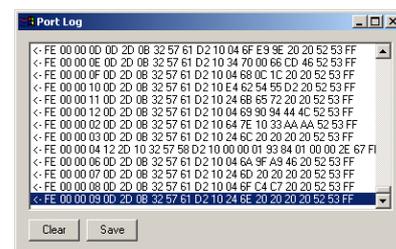The "<-" indicates received data by the software from the device. The "->" symbol stands for outgoing data.



*Fig. 4.2 – Port Log*

# 5. Operation

**Main RDS data - Basic data like PI, PS, CT, RT etc.**

The [Main] tab provides the following RDS data:

PI - Program identification code
PS – Program service name
PTY – Program type code
CT – Clock time
MS – Music / Speech code
DI – Decoder identification code
PIN – Program item code
TP – Traffic program
TA – Traffic announcement
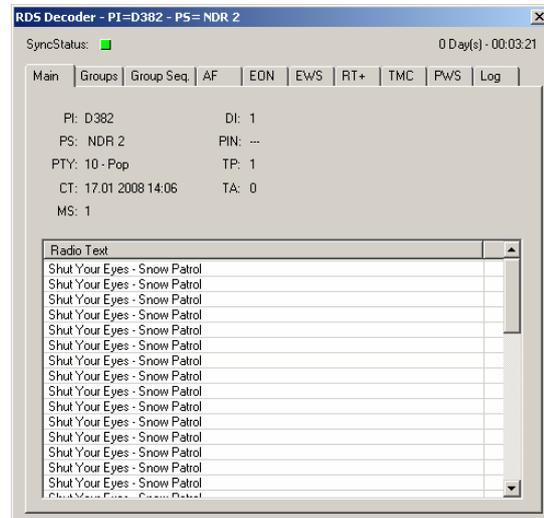Radio Text (in chronological order)



*Fig. 5.1 – Main RDS data*

**Displays above the tabs:**

The "SyncStatus" on the left side is "green" as long as the device is "in sync" and RDS data is received. It changes to "red" if the device is "out of sync", caused by a bad/missing RDS signal. It will turn to "gray" if there is a connection problem to the device. After 3 minutes of no RDS data, the connection will be closed.

The time display on the right side continuously counts the active decoding time since the start of the program. Format: "Day(s) - hours:minutes:seconds".

## Groups - Histogram of the RDS group type distribution

The [Groups] tab provides the percentage distribution of the received group types.

The red indicator mark shows the maximum peak level of group counts.

By a mouse-click on [Reset] the count values will be restored to zero.



*Fig. 5.2 – Group statistic*

## Group sequence - List of the latest 100 RDS group types

The [Group sequence] tab shows the latest 100 group types received. It can be paused by selecting the [Stop]-select box.

It shows also the time in seconds that was necessary to read 100 RDS groups.



*Fig. 5.3 – Group sequence*

## AF lists - List of the alternative frequencies

The [AF] tab displays the received lists of alternative frequencies (latest data on the top of the list).

A mouse click on the column headers changes the list sorting method alternatively to ascending by number or to ascending or descending by base frequency.

Depending on the method of the AF lists, the list will show pairs of alternative frequencies (method B) or just the comma-separated lists of alternative frequencies (method A).

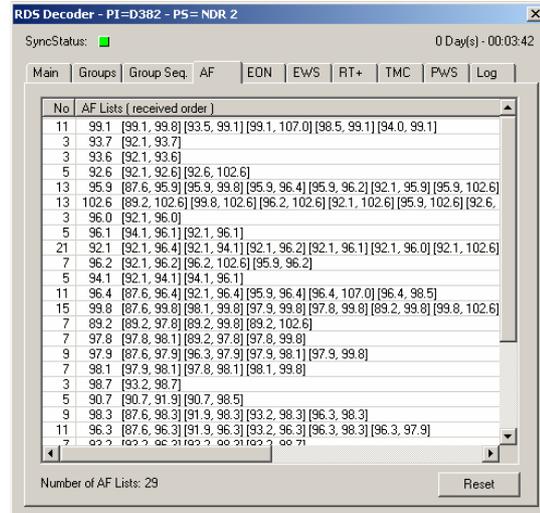By a mouse-click on [Reset] the lists will be cleared and then refreshed by present data.



*Fig. 5.4 – AF lists (method B)*

## EON lists - List of the 'Enhanced Other Networks'

The [EON] tab shows the list of enhanced other networks referenced stations with their RDS data PI, PS, TP/TA, and PTY.

By selecting a network the corresponding EON AF lists will be displayed.
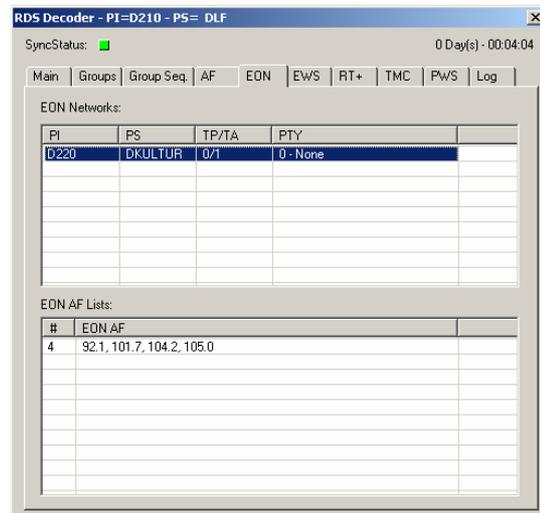


*Fig. 5.5 – EON lists*

**EWS - Display of Early Warning Messages**

Only available with the A20 option 'EWR soft'. Works only with an RDS signal that provides the 2wcom / viaRadio EWS service.

The [EWS] tab shows alert messages sent by the 2wcom Early Warning System-Server or the 2wcom Alert Control LT software.

On the top of the dialog you will see the configuration data which were sent by using the 3A group:

• Encrypt – the number of the encryption table (0 – 7) that was used to encrypt the data
• Customer – the customer ID
• Application Group Type Code – indicates in which group the alert messages are sent
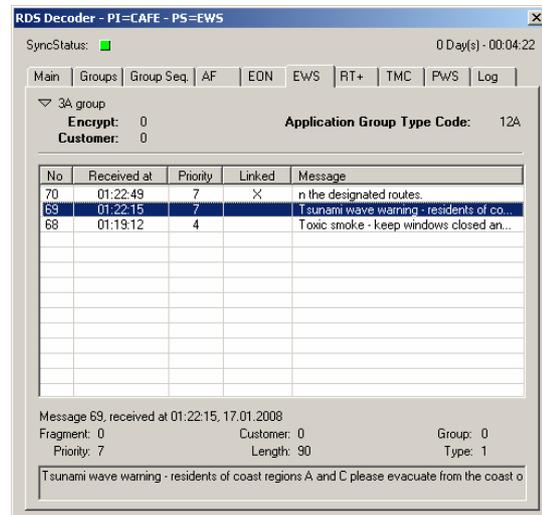


Fig. 5.6 – EWS

The list shows the received messages:

• No - Unique message ID
• Received at – time of reception
• Priority – priority (0 - 7) for the message. Will result in different behaviours in the EWR (like a beeping or no beeping warning receiver)
• Linked – indicates whether the message line belongs to another message line or not. This happens if the alert message has more than 90 characters
• Message – text of message for display in the EWR (Early Warning Receiver)

Further information about the selected message is displayed at the bottom of the dialog:

• Date of reception
• Fragment – message fragment number
• Customer – customer ID
• Group – group ID
• Priority – priority (0 - 7)
• Length – count of chars in the message text
• Type – 0 = stop message, 1 = alert message, 2 = configuration message
• The message in full length

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**RadioText Plus (RT+) - Display of the content details**

Only available with the A20 option 'RT+'. Works only with an RDS signal that provides the RT+ service.

The [RT+] tab shows the 3A group info for RT+ and the RT+ tags (type and content), taken from the current RadioText, in a list.

The 3A group details can be shown or hidden by a mouse click on the arrow next to the 3A group label.

The "LED" to the right hand side of the 3A group details indicates the current 3A group status – it is green if the 3A group with the AID for RT+ is received at least every 10 seconds, and is red otherwise.

The RT field shows the current RadioText. Tag1 and Tag2 show the RT+ content type according to the specification. Additionally, the transmitted start marker and the length marker (X/Y) is shown. In the second row, the resulting RT+ content string, taken from the current RadioText by using the transmitted start marker and length, is shown.

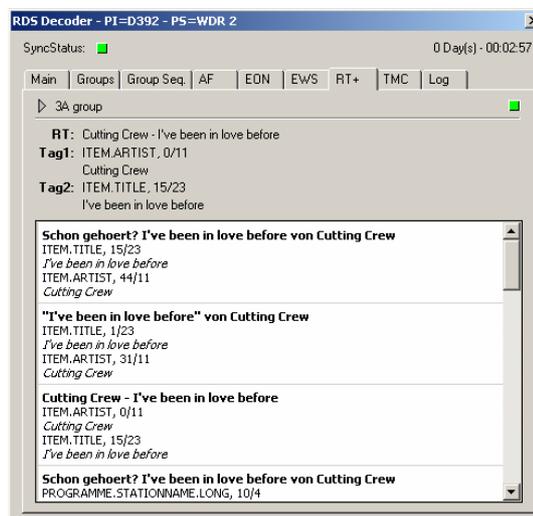Each new RT+ content will be added to the list.



*Fig. 5.7 – RadioText (RT+)*

**Traffic Message Channel (TMC) - Display of the messages**

Only available with the A20 option 'TMC'. Works only with an RDS signal that provides an (open) TMC service.

The [TMC] tab shows the transmitted TMC messages as decoded plaintext (provided that the national location code list is available) plus basic TMC details like SPN, LTN, SID, MGS and encryption parameters (ENCID, LTNBE, Test).

If the necessary national location database is not available, the list box will contain a corresponding message and no TMC messages will be shown.

Next to each TMC message, an icon may be shown; a red exclamation mark will be shown for extremely urgent messages, a yellow exclamation mark will be shown for urgent messages and no icon will be shown for messages with normal urgency.



Fig. 5.8 – traffic message channel (TMC)

A third possible icon (blue „chasing arrows") will be shown for messages that have been updated/changed.

A mouse-click on [Show details] will bring up a panel, showing all general TMC details including SPN, LTN, SID, MGS and encryption parameters (ENCID, LTNBE, Test).

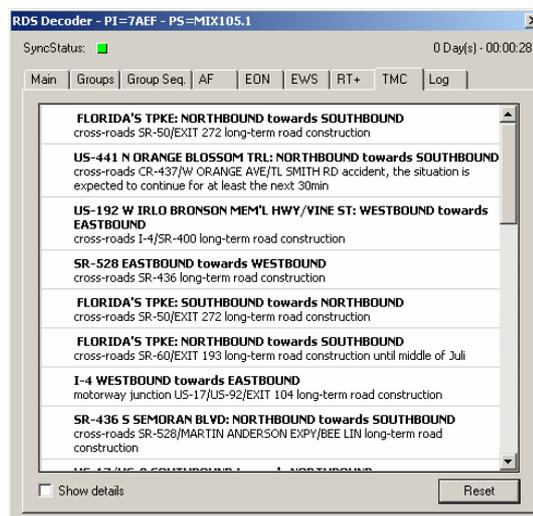A mouse-click on [Reset] clears the list of all received messages.

**PWS (German language only) - Display of the weather data list**

Only available with the A20 option 'PWS'. Works only with an RDS signal that provides the 2wcom PWS service.

The [PWS] tab shows the current weather data and the forecast for all weather-regions that are provided by the device.

The data will be sent in an endless loop, so at first the RDS Softdecoder waits for the unique "update-frame" to find the first frame with weather data.



*Fig. 5.9 – PWS waiting for update-frame*

The frames will be collected until the "update-frame" is received again. Then the last frame is found.
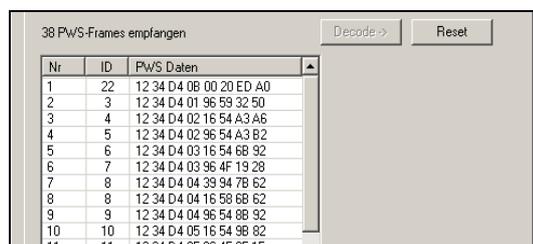


*Fig. 5.10 – PWS receiving PWS data*

Thereafter the complete data will be decoded and displayed in the "Decode"-screen.

Now it is possible to change between the Gruppen / Group- and the Decode-screen by a mouse-click on the [<-Gruppen] / [Decode->] button.

At the top, the remaining time (in minutes) until the next "Wetter/weather" and "Ort/town" data update is displayed.

The [Reset]-button will clear the list and start the frame collecting and decoding process again.
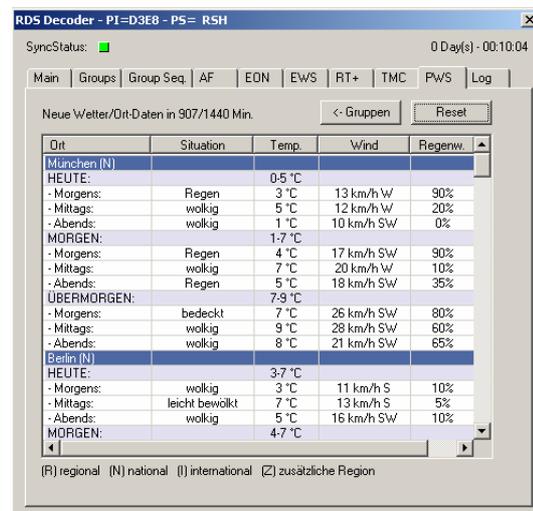


*Fig. 5.11 – Decoded PWS data*

The list shows one block of each weather region grouped by towns. One weather block consists of situation, temperature, wind speed, wind direction, precipitation and the region ID (scroll right to show) for today, tomorrow and the day after tomorrow.

The caption at the bottom explains the regional type of the towns.

•(R) regional
•(N) national
•(I) international
•(Z) additional region (zusätzliche Region)

## Logging - Control of the RDS group data log

The [Log] tab will let you save the plain group data by a mouse-click on [Start Logging].

A new group log file will be created every hour in the same directory where the softdecoder.exe is located.

The filename specifies the time and date when it was created.

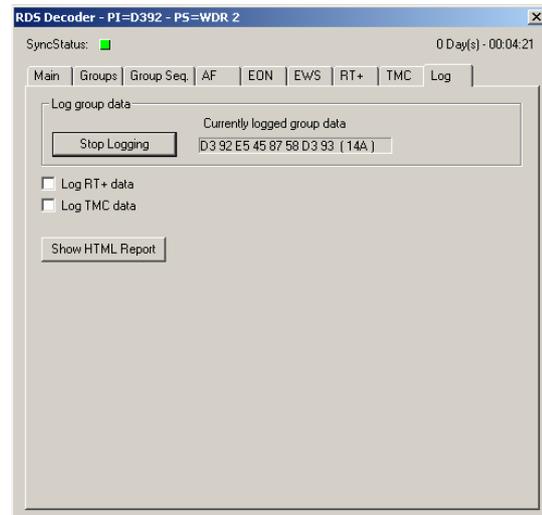Every line of group data will be saved with a timestamp and the group type in brackets.



*Fig. 5.12 – Logging*

Filename: grlog_2007-05-31-14.txt

…
2007-05-31 14:21:41 D3 82 25 54 65 64 20 20  ( 2A )
2007-05-31 14:21:41 D3 82 05 48 11 97 20 4E  ( 0A )
…

By checking [Log RT+ data] a new RT + log file will be created every hour in the same directory where the softdecoder.exe is located (A20 option 'RT+' required).

Filename: RTPlusLog_2007-05-31-14.txt

By checking [Log TMC data] a TMC log file will be created in the same directory where the softdecoder.exe is located (A20 option 'TMC' required).

Filename: TMCLog.txt

## HTML export - Generates an RDS data report

By a mouse-click on the [Show HTML Report] button of the [Log] tab, the default HTML browser will open a HTML report of the current RDS data that is located in the directory "html_report".



*Fig. 5.13 – html_report/index.html*