

MAINTENANCE AND OPERATION
INSTRUCTION MANUAL

SmartGen Scheduler



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Introduction

DEVA Broadcast Ltd. was established in 1997 as a broadcasting and telecommunications equipment importer for Bulgaria and Eastern Europe regions. Subsequently, DEVA Broadcast Ltd. has developed and produced a wide range of low and mid - power transmitters, RDS/RBDS Encoders and Decoders, Modulation Monitors, Remote Controls, Site monitoring and other systems for many companies around the Globe. Our experienced and innovative engineers accomplish their bright ideas through successful engineering, marketing and management at DEVA Broadcast's corporate headquarters in Bulgaria.

During the last ten years our company's products have become our partners' best-sellers. After a detailed marketing analysis, our team has decided to launch its own brand products based on the latest technologies in the broadcasting business. We have dedicated our efforts and expertise to the design and development of a complete line of high-quality and competitive products for FM and Digital Radio, Radio Networks, Telecommunication Operators and regulation authorities. We pride ourselves on our post-sales support and relation to the clients which have won us due respect and our market authority position.

Since 2003 DEVA Broadcast Ltd. has been ISO 9001 certified.

The contractors of DEVA Broadcast Ltd. are satisfied with the permanent business comfort and to their own confession they owe it to a great extent as well as their prosperity to the loyal partnership of our company.

General Information

DEVA SmartGen Scheduler is software designed to generate thorough scheduling of the main RDS parameters and On Air messages.

When launched, it manages the devices that show predefined messages and/or parameters on prearranged time and on recurring days of the week. This preset programming solution is a great facilitation to its users which adds to their comfort of use of DEVA SmartGen RDS/RBDS product line.

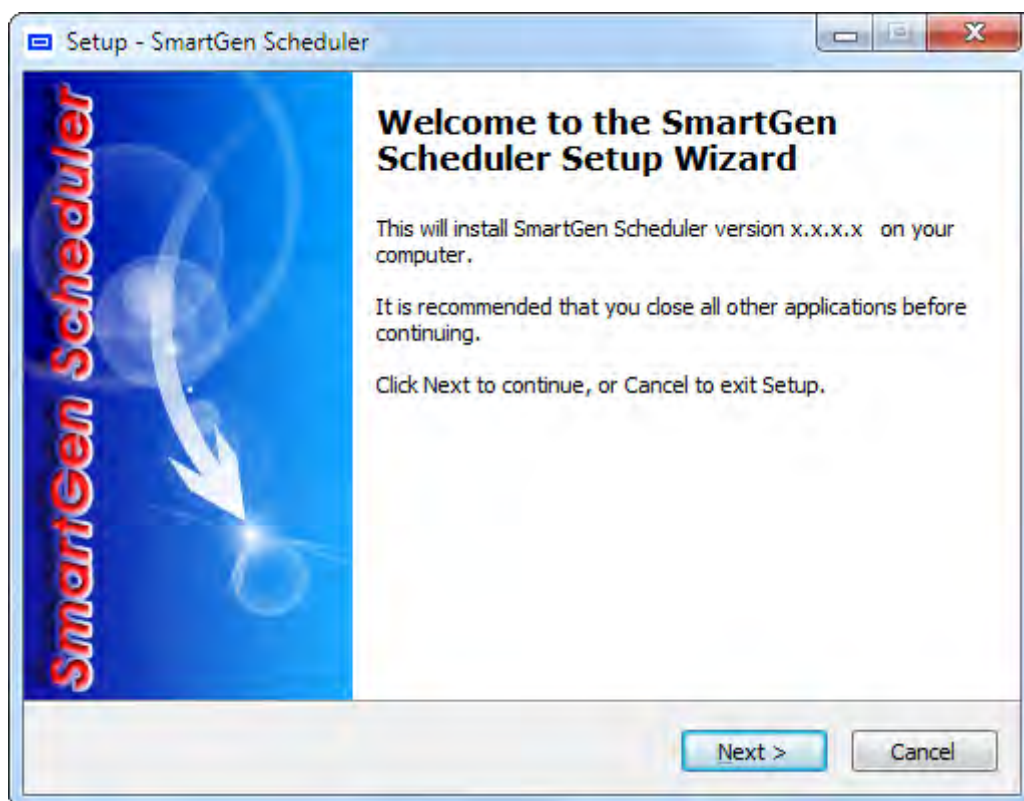
Loading and Running The Software

MINIMAL SYSTEM REQUIREMENTS

Pentium(R) Processor or Compatible
Windows XP and above
512MB RAM
20MB free hard drive space for installation
16 or 32-bit graphics color depth
1024 by 768 pixels screen resolution
Screen DPI setting to 96 dpi
Universal Serial Bus 2.0

INSTALLING THE SOFTWARE

Insert the supplied CD. Click Start, then My Computer, and then double-click the CD Drive (typically D:). Open the SmartGen Scheduler folder and double click the installation file to launch the Wizard (shown here) that will guide you through the several installation steps.



Unless you have a specific reason to make changes, simply accept the default recommendations and click Next> at each step.

Using the SmartGen Scheduler Software

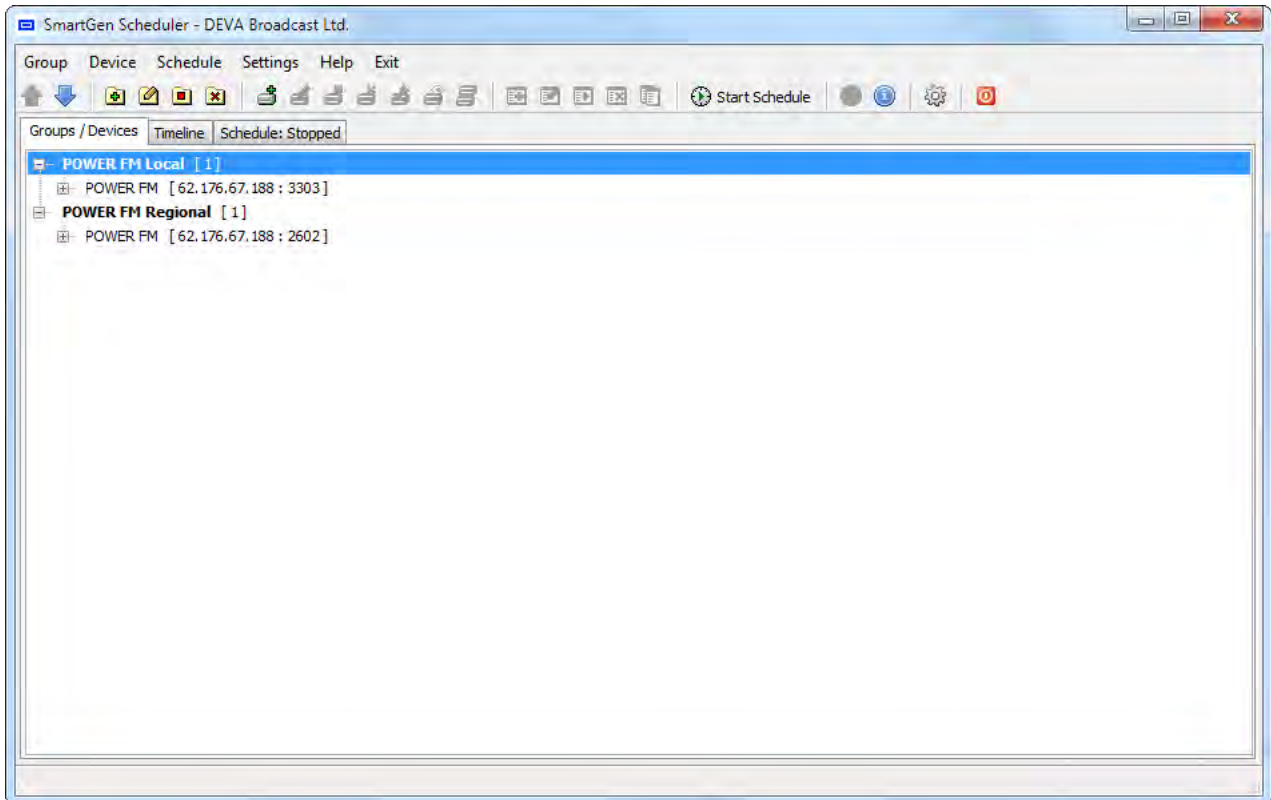
After the initial software installation, the following shortcut of the software will be located on the desktop.



You can launch the program using this shortcut or using Start >Programs > SmartGen Scheduler

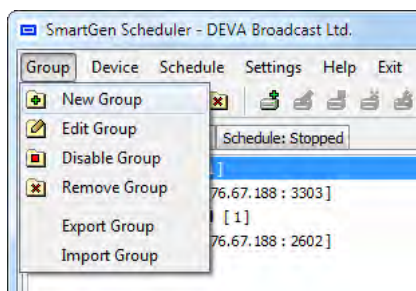
GROUPS

The **Group** is a category to contain one or more devices defined by a parameter in common and subjected to an event.



Click on the **Group** menu on the initial page of the SmartGen Scheduler software. Choose **New Group** from the submenu. A dialogue box will appear, prompting you to enter a name of the group. Having entered a title for it, you have created a group which could contain one or more devices that will be subjected to a schedule on the following parameters: **time** (divided provisionally into time of starting of an event and time of concluding of the event) and **day of the week**.

The **Group menu** contains the following options:



New Group – you can add a new group to the list of the already existing one(s);

Edit Group – you can change the name (*it is not allowed to have groups with identical names*) of the group and either Enable or Disable it.

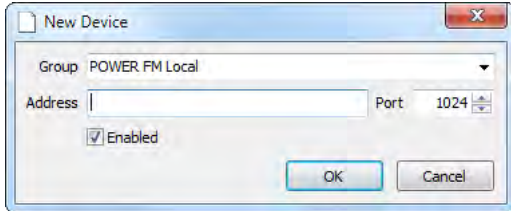
Enable/Disable Group – if a group is disabled, then it would not participate in the event(s) that is taking place. Enabling it, it would be included again in the scheduling process.

Remove Group – you can remove a group from the list of the groups subjected to events. Removing the group, you automatically remove all the devices contained in it, as well as all the events associated with it.

The user can also Export/Import individual group to/from a file.

DEVICES

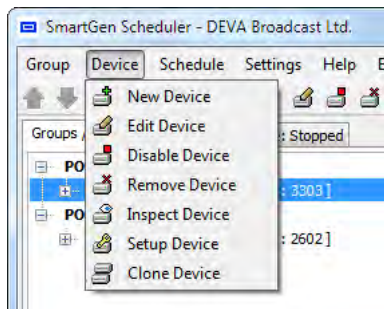
To add a device to an already existing group you need to click on the **Device** icon and select the **New Device** option from the submenu. If the group to which you want to add a unit is still non-existent, you could create it directly from the **New Device** window.



Enter then the device Address (Host name or IP address) and Port in the slots. The software will start an immediate inspection of the SmartGen unit preset parameters. It will then ask you to define its default values.

NOTE: The device Default values are the parameters for which the program is continuously responsible to keep set when the equipment is not an object to an event and alternatively – when the Schedule is stopped. These cases considered, the device will be switched back to its default values.

The Device menu contains the following options:



New Device – you can add a new device to the group;

Edit Device – you can change the details as regard to it – the group containing it, the device address and port, whether it is enabled or disabled; if the program detects that you have changed the address and/or the port of a device, it may conclude that this is a different device, thus it will start an inspection anew.

Enable/Disable Device – if a device is disabled, then it would not be included in the event taking place, even if participating in a group subjected to a particular event.

Remove Device – you can remove the device from a group. Subsequently, the device will be removed as a target from all the events in which it has participated.

Inspect Device – the software will start an immediate inspection of the predefined parameters set to the device and it will check whether a connection to it could be established. Subsequently, it will ask you to set the new defaults;

Setup Device – you will be allowed to setup new default parameters. The system marks in red the fields that you need to fill in. The section Default Values is where you should enter the values of your preference. Last Read Values section gives you information about the values as they were last ascribed as a result from the inspection. From the Copy to Defaults button you can turn the set values into default ones. Device Info supplies you with the primary specification of the equipment in use;

The screenshot shows the 'POWER FM' software window with the 'Default Values' tab selected. The interface contains several input fields and buttons. Red boxes highlight the following fields: Character Code Table, PTY, RDS, RBDS, TA, TP, PS, PTYN, DI, MS, and Dynamic PS. The 'RT' section contains a table with columns 'No', 'Radio Text', and 'Transmissions A/B'. The 'Dynamic PS' section includes a 'Parse' dropdown and a 'Text' input field. Buttons for 'Add', 'Clear', 'Save Changes', and 'Revert Changes' are also visible.

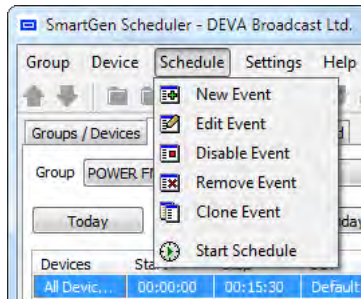
Clone Device – You are enabled to duplicate an already existing device and its respective parameters.

NOTE: It is not recommended to have two identical devices, especially within the same group.

The cloned information/parameters could be used as a template but they should by no means be identical.

SCHEDULE

The Schedule enables you to execute a number of events while changing the predefined parameters of the devices, based on time and date.



New Event – you can create a new event for the group(s) you have selected.

Edit Event – the parameters of the event could be changed and edited.

Enable/Disable Event – you can either enable or disable a particular event. If disabled, the event will not be performed, until enabled again.

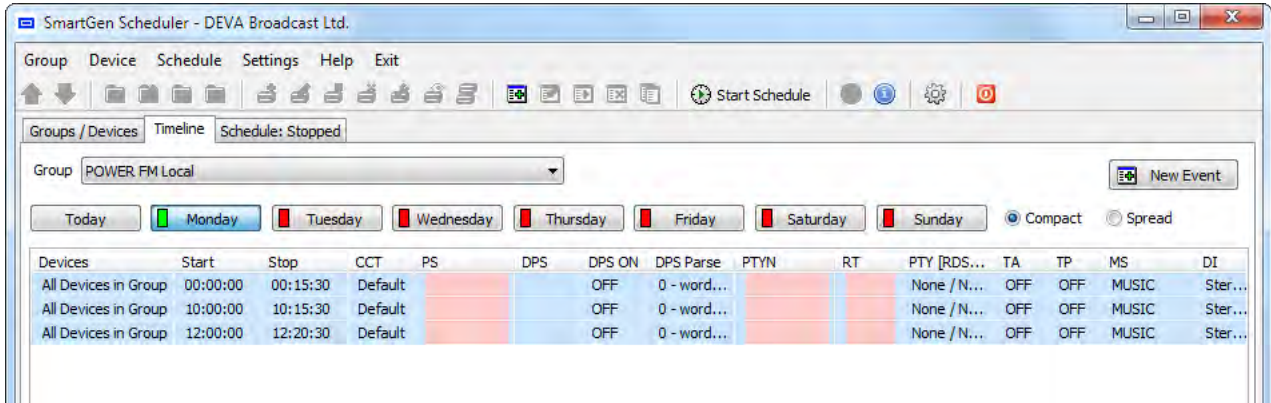
Remove Event – once removed, an event could not be restored.

Clone Event – the parameters of a particular event could be copied and applied to a new one.

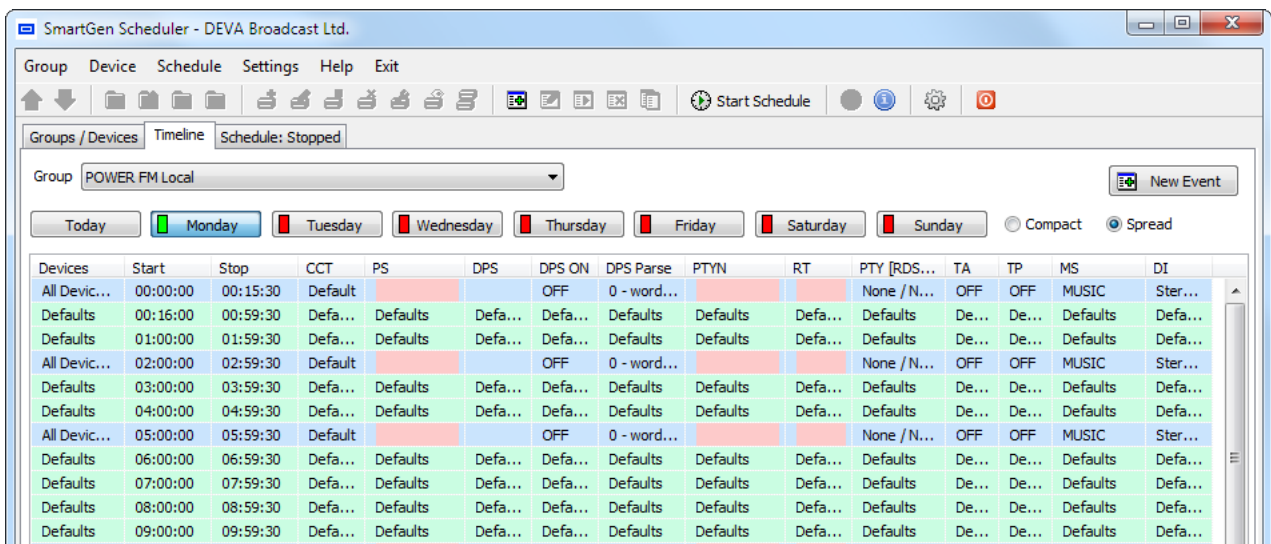
Start/Stop Schedule - enables you to start/end the schedule process.

TIMELINE

Timeline is a menu to give graphical visualization of the event to take place. The view could be either **Compact**:



or more detailed – **Spread** ([see “Spread View Resolution” on page 16](#))



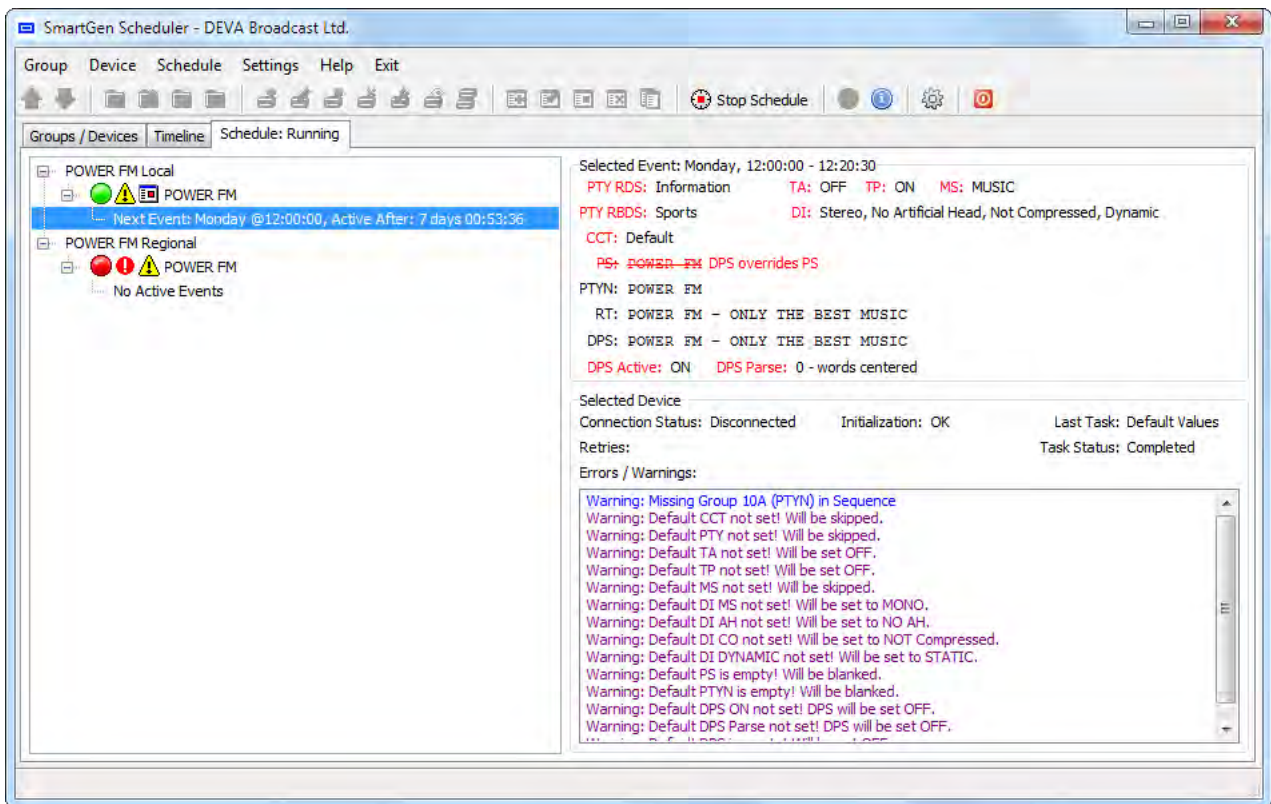
This type of visualization is for the purposes of illustration of the timing of the events. It conditionally distributes the events according to the time range that you have selected. Where there is no real event being set, the row is colored in green (defaults).

Click on the **New Event** button to implement an event.

A dialogue box will appear prompting you to fill in the slots for Group, Day, Start and Stop for the event, etc.

NOTE: Unless you enter the devices that will be subjected to the event in the **Targeted Devices** slot, all the entities within the given group will be subjected to it.

Through the Schedule section you can inspect what current events are taking place. Once the Scheduler is started all other activities are disabled.

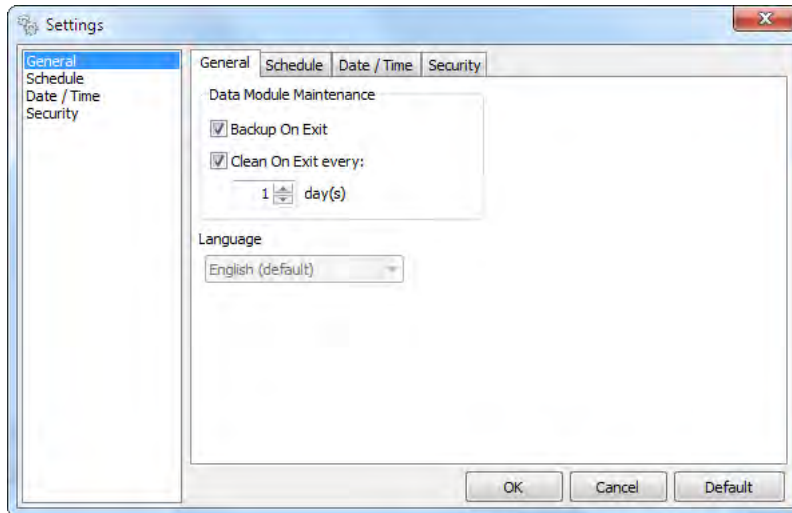


NOTE: When the Schedule is stopped all the devices will be switched back to their default values.

SETTINGS

The Settings menu contains the following subcategories:

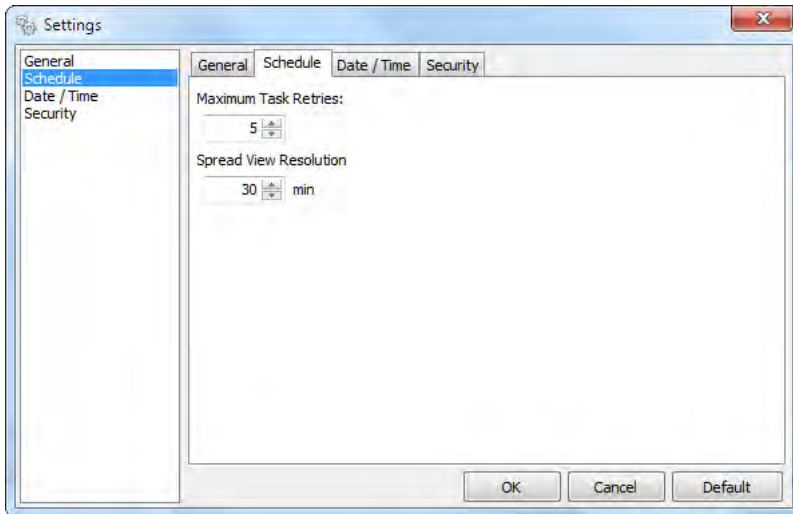
General



Backup On Exit - will create a backup copy of the entire database when the program is closed.

Clean On Exit - will perform cleaning routines when the program is closed. An additional option for a process recurrence is available since cleaning is a slow process and it is not necessary to be undertaken frequently.

Schedule

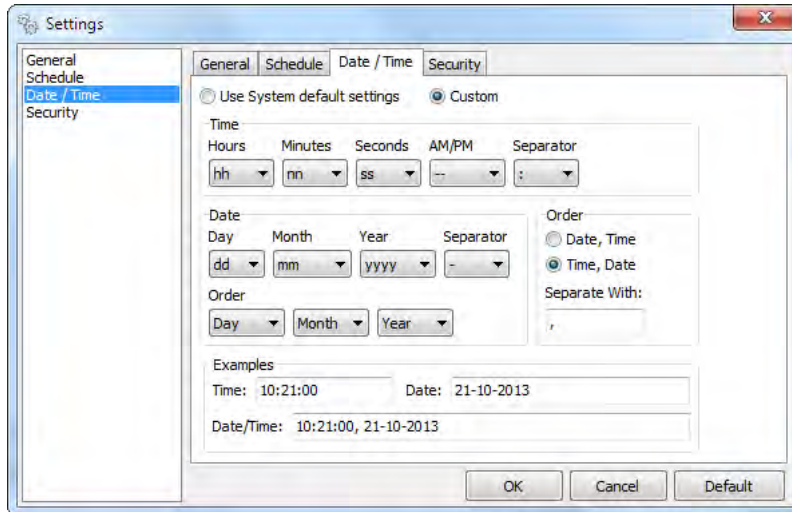


Maximum Task Retries – the program will try to establish connection with the device, the number of times the user has set it.

Spread View Resolution – this parameter determines the distribution of the time range – a distribution step.

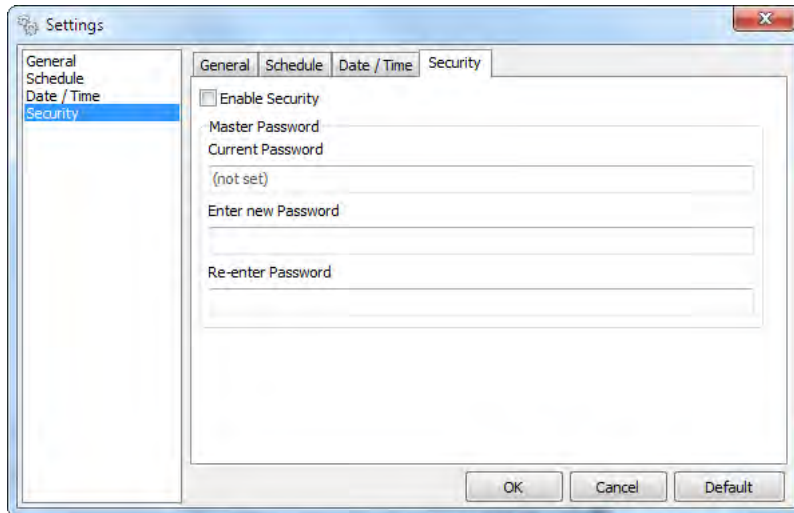
Date/Time

Either use the default settings about Time and Date to suit your visualization needs or customize them.



Security

Enable or disable the security option. When enabled, the system would continuously prompt you to enter a password in order to grant you access to implement actions. The OK for 5 minutes option will guarantee you free access and manipulations within 5 minutes.



APPENDIX A

RDS: EUROPE VS AMERICA

The European Broadcasting Union (EBU) and its member countries originated the concept of “Radio Data” transmission. The European RDS specification, CENELEC Standard EN50067, was first published in 1984. It was revised in 1986, 1990, 1991 and 1992.

European RDS has grown in use following initial adoption of the Standard. RDS is nearly universal throughout Europe; it is almost impossible to find a European FM broadcasting station that does not carry a radio data subcarrier.

The popularity of RDS in Europe is very much in contrast with initial reluctance on the part of US broadcasters to embrace this technology. This can be ascribed to material differences in broadcasting practices.

Almost without exception, FM broadcasting in the United States is ‘detached’ and independent - each station originates its own programming. America’s National Public Radio might be considered as an exception, though for most of the broadcast day even NPR stations originate, or at least schedule, their own programs.

Most of European broadcasting is similar to the concept of network radio that was common in the US prior to the 1950s. In Europe, a central program originator may have many transmitting facilities of modest power situated throughout the country, at several different frequencies to blanket a designated service area. The European disposition, toward lower-power transmitters can be found on the “local radio” level, as well.

The European concept of a service area equates to the US broadcaster’s market. The subtle difference between these designations further characterizes broadcasting practices and ethics. RDS benefits the European broadcaster through almost an altruistic endeavor to be of service to his listeners. The US broadcaster is marketing his programming and is primarily interested in how he can create additional revenue from RDS.

THE RDS SYSTEM

RDS is a digital data channel, transmitted as a low-level subcarrier above the range of the composite stereo program signal in the FM baseband. The data transmission (baud) rate is comparatively low, yet it is quite robust because of data redundancy and effective error correction.

It is not within the scope of this Manual to cover the details of RDS subcarrier coding and modulation. For this, the reader is directed to the Specification appropriate to his location either the CENELEC EN50067 Specification for Europe or the United States NRSC Specification. Since the Manual will deal with specific implication of RDS implemented with the SmartGen Scheduler, it is assumed that the user is familiar with the RDS concept.

APPENDIX B

RDS APPLICATIONS SUPPORTED

Following is an alphabetical list of the RDS applications supported by SmartGen Scheduler. The standardized RDS application abbreviation is followed by an expansion of the application name and a short explanation of the function.

DI

Decoder Information: This is one of several ‘flags’ that convey yes/no or other very basic data. This flag helps the receiver to indicate whether the broadcast is monaural or is transmitted in any of several methods of stereo or binaural broadcasting. As many as 16 encoding options may be accommodated! This is a rather esoteric function and, thus far, remains unused both in Europe and in the US.

M/S

Music / Speech Switch: This flag simply indicates whether music or speech is the primary broadcast programming. The purpose of this function is not well explained in the respective Standards; hence it comes as no surprise that it is not widely used.

PI

Program Identification: This block of data identifies the broadcast station with a hexadecimal numerical code, which becomes the “digital signature” of the station. The code is assigned by the broadcasting authorities in most countries, but in the US it is calculated from a numerical encoding of station call letters. The receiver processes the PI code to assist automatic tuning features (station memories), and to prevent false switching to alternative frequencies that might be shared by broadcasters in nearby regions.

PS

Program Service Name: This is the station’s “street name” that will appear on the receiver faceplate display. The PS can be up to eight characters in length (including spaces) and can be as simple as the station’s call letters: KWOW or KWOW FM, or a slogan: NEWSTALK or LIVE 95. The Program Service Name is automatically displayed, even on the automobile receivers. Because of driving safety considerations broadcasters are generally discouraged from scrolling messages in this field. As a matter of fact, it is a violation of both the CENELEC and the NRSC standards to scroll the PS display, although the practice has become universally common.

PTY

Program Type: The PTY data flag identifies the station format from a collection of pre-defined categories. Many RDS receivers are able to seek the listener’s preferred format automatically. This means that a car radio can switch from a fading station to a stronger one that carries the same variety of music, though not the very same program, as provided by AF switching. The PTY function of RDS helps a broadcaster catch ‘transient audience’ share. A listing of the PTY categories is given in [“APPENDIX C.1”](#) on page 24 and [“APPENDIX C.2”](#) on page 25.

Under some programming circumstances, the PTY identifier may be made ‘dynamic,’ changing between categories for a station that “dayparts” (changes its format for specific time periods).

The PTY code is not meant to change from song to song or to accommodate a top-of-the-hour newscast, however.

PTYN

Program TYPe Name: The PTYN feature allows the predefined by the RDS/RBDS Standard PTY to be further described using user-defined text (e.g. PTY=4: Sport and PTY=8: Football). The PTYN is not intended to change the default eight characters of PTY which will be used during search or wait modes. Its purpose is to show in details the program type once tuned to a program. If the broadcaster is satisfied with the default PTY name, it is not necessary to use additional data capacity for PTYN. The Program Type Name is not intended to be used for automatic PTY selection and must not be used for giving sequential information.

RT

RadioText: This is a 64-character block of plain text that the listener can select for visual display on the faceplate of the radio by pressing an INFO button on the receiver. This function is not available on many automobile radios for safety reasons, which has precipitated the frowned-upon practice of scrolling the PS field instead.

Most radios have limited alphanumeric display capability, so the 64 characters of RadioText march across the front panel, much akin those annoying LED advertising signs found in airport buses or fast food emporia. Like the scrolling-PS implementation, RadioText can announce song titles and performers, run special promotions or contests, or broadcast sponsors' messages.

TA

Traffic Announcement: This is a temporary flag added to the RDS data stream only as a traffic bulletin is being aired. Some RDS car radios can be set to search for traffic bulletins among various TP stations (see TP below) while tuned to a listener's preferred program, or even while playing a tape or CD. As soon as any TP station broadcasts a traffic bulletin, the receiver temporarily switches-over to receive it. When the bulletin is finished, the receiver switches back to the original program, tape or CD.

TP

Traffic Program Identification: The TP flag identifies the station as one that routinely broadcasts traffic bulletins for motorists as part of its normal, everyday programming. When the TP flag is displayed on the receiver faceplate, the radio is searching for traffic announcements. The radio keeps track of TP stations offering this service to speed up the search-and-switch process.

APPENDIX C.1

PTY Code Description Used in RBDS Mode – North America

PTY	Short Name	Description
1	News	News reports, either local or network in origin.
2	Information	Programming that is intended to impart advice.
3	Sports	Sports reporting, commentary, and/or live event coverage, either local or network in origin.
4	Talk	Call-in and/or interview talk shows either local or national in origin.
5	Rock	Album cuts.
6	Classic Rock	Rock oriented oldies, often mixed with hit oldies, from a decade or more ago.
7	Adult Hits	An up-tempo contemporary hits format with no hard rock and no rap.
8	Soft Rock	Album cuts with a generally soft tempo.
9	Top 40	Current hits, often encompassing a variety of rock styles.
10	Country	Country music, including contemporary and traditional styles.
11	Oldies	Popular music, usually rock, with 80% or greater non-current music.
12	Soft	A cross between adult hits and classical, primarily non-current softrock originals.
13	Nostalgia	Big-band music.
14	Jazz	Mostly instrumental, includes both traditional jazz and more modern “smooth jazz.”
15	Classical	Mostly instrumentals, usually orchestral or symphonic music.
16	Rhythm and Blues	A wide range of musical styles, often called “urban contemporary.”
17	Soft R and B	Rhythm and blues with a generally soft tempo.
18	Foreign Language	Any programming format in a language other than English.
19	Religious Music	Music programming with religious lyrics.
20	Religious Talk	Call-in shows, interview programs, etc. with a religious theme.
21	Personality	A radio show where the on-air personality is the main attraction.
22	Public	Programming that is supported by listeners and/or corporate sponsors instead of advertising.
23	College	Programming produced by a college or university radio station.
24-28	Unassigned	
29	Weather	Weather forecasts or bulletins that are non-emergency in nature.
30	Emergency Test	Broadcast when testing emergency broadcast equipment or receivers. Not intended for searching or dynamic switching for consumer receivers. Receivers may, if desired, display “TEST” or “Emergency Test”.
31	Emergency	Emergency announcement made under exceptional circumstances to give warning of events causing danger of a general nature. Not to be used for searching - only used in a receiver for dynamic switching.

NOTE: These definitions can differ slightly between various language versions.

APPENDIX C.2

PTY Code Description Used in RDS Mode – Europe, Asia

PTY	Short Name	Description
1	News	Short accounts of facts, events and publicly expressed views, reportage and actuality.
2	Current affairs	Topical program expanding or enlarging upon the news, generally in different presentation style or concept, including debate, or analysis.
3	Information	Program the purpose of which is to impart advice in the widest sense.
4	Sport	Program concerned with any aspect of sport.
5	Education	Program intended primarily to educate, of which the formal element is fundamental.
6	Drama	All radio plays and serials.
7	Culture	Programs concerned with any aspect of national or regional culture.
8	Science	Programs about the natural sciences and technology.
9	Varied	Used for mainly speech-based programs usually of light-entertainment nature, not covered by other categories. Examples include: quizzes, games, personality interviews.
10	Pop	Commercial music, which would generally be considered to be of current popular appeal, often featuring in current or recent record sales charts.
11	Rock	Contemporary modern music, usually written and performed by young musicians.
12	Easy Listening	Current contemporary music considered to be “easy-listening”, as opposed to Pop, Rock or Classical, or one of the specialized music styles, Jazz, Folk or Country. Music in this category is often but not always, vocal, and usually of short duration.
13	Light classics	Classical Musical for general, rather than specialist appreciation. Examples of music in this category are instrumental music, and vocal or choral works.
14	Serious classics	Performances of major orchestral works, symphonies, chamber music etc., and including Grand Opera.
15	Other music	Musical styles not fitting into any of the other categories. Particularly used for specialist music of which Rhythm & Blues and Reggae are examples.
16	Weather	Weather reports and forecasts and Meteorological information.
17	Finance	Stock Market reports, commerce, trading etc.
18	Children’s programs	For programs targeted at a young audience, primarily for entertainment and interest, rather than where the objective is to educate.
19	Social Affairs	Programs about people and things that influence them individually or in groups. Includes: sociology, history, geography, psychology and society.
20	Religion	Any aspect of beliefs and faiths, involving a God or Gods, the nature of existence and ethics.
21	Phone In	Involving members of the public expressing their views either by phone or at a public forum.
22	Travel	Features and programs concerned with travel to near and far destinations, package tours and travel ideas and opportunities. Not for use for Announcements about problems, delays, or roadworks affecting immediate travel where TP/TA should be used.
23	Leisure	Programs concerned with recreational activities in which the listener might participate. Examples include, Gardening, Fishing, Antique collecting, Cooking, Food & Wine etc.
24	Jazz Music	Polyphonic, syncopated music characterized by improvisation.
25	Country Music	Songs which originate from, or continue the musical tradition of the American Southern States. Characterized by a straightforward melody and narrative story line.
26	National Music	Current Popular Music of the Nation or Region in that country’s language, as opposed to International ‘Pop’ which is usually US or UK inspired and in English.
27	Oldies Music	Music from the so-called “golden age” of popular music.
28	Folk Music	Music which has its roots in the musical culture of a particular nation, usually played on acoustic instruments. The narrative or story may be based on historical events or people.
29	Documentary	Program concerned with factual matters, presented in an investigative style.
30	Alarm Test	Broadcast when testing emergency broadcast equipment or receivers. Not intended for searching or dynamic switching for consumer receivers.. Receivers may, if desired, display “TEST” or “Alarm Test”.
31	Alarm	Emergency announcement made under exceptional circumstances to give warning of events causing danger of a general nature. Not to be used for searching - only used in a receiver for dynamic switching.