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RADIO-ASSIST: MULTILINGUAL SOFTWARE

To date, Radio-Assist can manage up to 12 different languages. But how does it manage its translations so that a single radio station can access them all?

Language management is actually on three levels.

The first level is the NT layer. NT must provide for the use of several alphabets to operate in different languages. Only Roman characters are defined on the native NT platform. Other languages can be added using a version with the option of other character recognition. When this option is installed, NT will still be in English or French but can use characters different from those of the Roman alphabet (e.g. Arabic).

There are also versions of NT in Mandarin Chinese or Korean, amongst others, which have the option of Roman characters.

The second level is the SQL Server database engine which, in its turn, must authorise the use of these languages. When Radio-Assist is browsed, it is the database engine which runs the browse and so it has to be able to recognise the characters used. So the sort functions are based on a classification system predefined by the engine. This is an option to select when installing SQL Server.

The last layer is Radio-Assist itself. To date, 12 languages are available (French, English, German, Italian, Malay, Korean, Thai, Spanish, Portuguese, Croat, Dutch and Chinese). Adding a language is fairly straightforward. A flexible management procedure enables a language to be implemented separately in the software from the database. Users belonging to a group have a profile and can associate to it the language they need. When they identify themselves to Radio-Assist by their login and password, Radio-Assist consults the list of user rights, shared and individual, and displays the interface in the relevant language.

To illustrate this, suppose a radio station has several news desks (English, Italian, etc.). All the journalists have the same rights and privileges, but work in different languages. They can all use the system in the language of their choice.

STREAM IN: INTERNET ENCODING UTILITY

Stream In is an Internet encoding utility which uses streaming technology for web surfers to access sound and images. So what is streaming?

Streaming is a system for transferring data in a constant regular stream so that multimedia files can be broadcast over the Internet on demand and in real time. Streaming means the user's Web browser can start displaying data before the file is fully downloaded. Streaming technology is acquiring ever-increasing importance with the development of the Internet: most users do not have access which is fast enough to download heavy multimedia files quickly, so streaming provides a very good alternative because, unlike the conventional system of video file transfer requiring them to be completely downloaded, it reads the files progressively as they come in.

Streaming is based on a client/server application for broadcasting multimedia files (sound, images, etc.) in real time, without using up the surfer's disk space. Data travels in compressed mode: the audio/video source is encoded in a special digital format which reduces the size of the file by using powerful mathematical algorithms to substitute the original image by a compact version.

The format is delivered via a dedicated server, live and/or archived, then delivered in pre-recorded mode to the surfers who have requested it. At each request, the server replicates the video file and delivers an adapted version to the specified connection using a permanent dialogue to regulate the stream. The drive decompresses the data packets as they arrive and synchronises the media on screen by interlacing the sounds and images. A click on the required video will start it playing within seconds, the time it takes to fill the buffer part of the RAM temporarily generated by the drive.

As the file is read, the control data sent to the video server tell it how the buffer is receiving the stream. It adjusts itself accordingly, transferring packets faster or slower, as the buffer fills up, and creates a reserve of space to cope with temporary network delays. It does this until the video file has been read in entirety.

Besides the NETIA Stream In product, two other products are on the market, by Real Networks and Microsoft, and are well-known because they can be downloaded at no cost from the Internet.

So what is the advantage of Stream In? It is that Stream In has the same encoding quality as the Real and MPEG encoding systems (because it is based on the same APIs) but can combine both these formats in a single interface. In addition, its encoding can be automatic whereas the others are totally manual.

The Stream In procedure for generating live video streams is as follows:

The platform is connected either to a VCR (delayed acquisition), camera (live acquisition), any other video and/or audio or AVI file source. Acquisition and encoding are started and stopped automatically (set time) or manually (remote control). The station starts the file encoding process in Real G2 and/or Microsoft MPEG format from a video/audio or AVI file source. The encoding rate can be set by the user. Each new encoding process overwrites the previous file; video and audio files are not stored on the platform but on the broadcasting server.

Stream In is a highly flexible utility and can adapt to all sorts of situation. The user defines whether broadcasting conditions are automatic or manual. In automatic mode, the user defines the start time and duration, and can also define an external trigger mode (GPI). For manual mode, NETIA has designed a dedicated remote control to pilot Stream In.

In addition, radio and TV companies sometimes need to broadcast programmes live over the Internet. Stream In starts compacting as soon as acquisition begins and transfers the audio/video files straight to the site. It can encode for broadcast in MPEG4 and Real G2 simultaneously using a single video source. For more complex live broadcast, Stream In has an automatic switch grid management function to change the acquisition source instantly. For instance, for broadcasting live over the Internet, the relay can change directly from camera 1 to camera 2.

When encoding is over, Stream In automatically publishes the result on an FTP site. The name of the file it produces can be preset. The generated file is transferred by low-cost means such as ISDN.

The size of the file produced by encoding depends on the format used and the relevant audience. To calculate the size the file will be, you can consult the following tables:

Audio in MPEG

	28.8	56	ISDN 64	ISDN 128	LAN	ADSL
11	X					
16	X	X				
20	X	X	X			
32		X	X	X	X	X
44			X	X	X	X
64				X	X	X

Video in MPEG

	28.8	56	ISDN 64	ISDN 128	LAN	ADSL
12	X					
15	X					
20	X	X				
25		X	X			
34		X	X			
45			X	X		
60				X		
80				X	X	
132					X	X
165					X	X
220					X	X

Audio in Real G2

	28.8	56	ISDN 64	ISDN 128	LAN	ADSL
11	X					
16	X	X				
20	X	X	X			
32/ 34		X	X	X		
44			X	X	X	X
64				X	X	X
96					X	X

Video in Real G2

	28.8	56	ISDN 64	ISDN 128	LAN	ADSL
12	X					
15	X					
20	X	X				
25		X	X			
34		X	X			
45			X	X		
54				X	X	
80				X	X	X
165					X	X
220						X

*So if we take video in Real G2 for an audience of 28.8, the rate will be: 12+15+20=47 Kbits/s. The file produced by a minute of encoding will be: 47*60=2820 Kb.*

The entire Stream In system can be governed by a shared reference clock. The time is adjusted by direct query to the time servers which are governed by an atomic clock. So each workstation is synchronised to the same time reference. They can be programmed to refer to the master clock at preset times and set their own internal clock to the right time.

Each workstation produces event logs in text format. These can be consulted via the user interface and are easily filtered so they only display relevant information. The reporting system can be set to activate a sound or visual alarm, or to send an error message with a copy of the log to one or more people.

The application also has an integrated file storage function. Files are automatically named on the basis of stipulated specifications. This function includes a programmable automatic purge. The main purge criteria are disk space and/or file age.

Stream In is fully independent. It can be managed at a distance using the PC Anywhere remote maintenance software installed on the computer. By adding video and/or audio cards, up to 4 audio-only or video channels can be encoded simultaneously (depending on the hardware configuration).

Stream In is a complete hard- and software solution. The Stream In workstation, specifically designed by NETIA, consists of an industrial micro-computer (2U rack):

- Pentium III – 666Mhz, 100 mb/s network, sound and video on system board
- 10 Gb hard disk
- Osprey 200 video/audio acquisition card
- I/O card
- Windows NT 4,
- CD drive, floppy drive
- Screen, mouse, keyboard

This solution is adaptable to your environment and also has an ISDN card and an external balanced-to-unbalanced converter on option.