Swiss Sound

News and Views from Studer

STUDER
professional audio equipment

Dear Reader

Bruno Hochstrasser

This edition of Swiss Sound features glimpses of Studer's research and development activities, an area that is normally – of necessity – under wraps and closed to outsiders. Starting on page 9, Renato Pellegrini and Ulrich Horbach introduce a number of our designers' exciting projects. You will soon realize why we can fairly boast that Studer is playing a key role in shaping audio's future.

It may not be immediately apparent, but these projects embody some incredibly important groundwork. Practical results to date include new products like the Studer-exclusive Virtual Surround Panning audio positioning tool found in the Studer D950 M2. Read the VSP application article on page 7 written by three Specialists of DeutschlandRadio right after the mixdown of a classical recording featuring the Berlin Philharmonic Orchestra.

Investment protection is something we take seriously. Studer's ongoing model management therefore considers not only future but also present customers. On page 4, Michael Tapes presents the new, extremely powerful dynamic automation found in our Studer D950 M2 flagship product, which can also bring a major fresh lease on life to the first Studer D950. Another example is the Studer On-Air 2000M2, whose enhanced functionality is also retrofittable to the first Studer On-Air 2000 from way back in 1997 – Roland Casagrande has the details on page 12.

You will find these and other topics in this edition of Swiss Sound. Happy reading!

Bruno Hochstrasser

Front Cover:
New Studer On-Air 2000M2
in its modern outfit

Studer at AES Amsterdam

Conventions and shows are always hard work - not only for Studer, but also for our sales partners. Last May, representatives were invited to our annual sales and marketing seminar prior the AES Convention. After a day of intense information exchange and training, attendees enjoyed the ideal weather with pleasant company and atmosphere aboard the VOC floating restaurant in Amsterdam.

Radio Rumania's outside broadcast vehicles:

Compact high-tech

Peter Weber

The air-conditioning units are the only really prominent external features on Radio Rumania's stylish Mercedes vans. Yet they must rank as the world's most compact high-tech outside broadcast vehicles, equipped with the best that digital audio technology has to offer.

The specifications for a pair of new outside broadcast vehicles for Radio Rumania (Rumanian Broadcasting Corporation) were both breathtaking and apparently contradictory: to meet the highest audio engineering standards, while remaining compact and cost-effective.

Perfect fit: The Studer D950 is just 1.57 m wide.

It was practicable largely because Radio Rumania's own specialists handled a large part of the project in-house. Conceptual design, project management, engineering, interior fittings, installation and vehicle commissioning were realized entirely by Radio Rumania. Professional expertise, plus the will to release specialists for a longer-term, complex project, were both present. The outside broadcast vehicles went into service within 12 months of the project getting underway.

Both vehicles are virtually identical. A Studer D950 forms the digital core and indeed the heart of each installation. Equipped with 24 channel faders and a narrow central section, it is the same width as the trio of Studer V-Eights (24 tracks) ranged above the console. The central section sports only the essential minimum of indicators and controls, to make room for the relocated level display. All the technology and some of the audio interface hardware are packed into one small and one medium-sized rack with a total space of just 27U. A stage-box on castors, with 40 remote-controllable microphone preamps, 40 direct outputs and 24 bit A/D converters, connects with the system processor via a fibre optics link. The Studer D950 packs 110 inputs and 76 outputs - an amazing feat in such a restricted space.

Radio Rumania's permanent studios use Studer digital mixing technology as well. 6 transmission suites at Bucharest headquarters are equipped with Studer On-Air 2000 desks, with further 2000s in regional studios at Resita, Craiova a Cluj. Another pair at the Constanta regional studios makes for a grand total of 11 Studer On-Air 2000s in service. In addition, three Studer Route 56 with CS 56 Software are used for routing signals in the Radio Centers 1, 2 and 3. ■

New AutoTouch Plus Automation for Studer D950

Ease of use with *enhanced power and flexibility*

Michael Tapes

Ease of use has been a hallmark of Studer's AutoTouch Dynamic Automation system since its introduction in the original D950 digital mixing system. With the release of AutoTouch *Plus*, Studer has created a totally new dynamic automation engine to meet the rigorous demands of audio post and music mixing head on.

The AutoTouch Plus Project
The challenge to create a completely new automation engine that would become the basis of the new AutoTouch Plus system was not an easy one. To meet this difficult challenge, Studer software engineers located both in Switzerland and the United States worked together to develop a system that would retain the ease of use of AutoTouch while providing a level of sophistication that would meet and exceed what was available in other console systems. Five areas of endeavor were identified.

• Mix File Management
• Object Mode Control
• Static Object Management
• On-Line Automation Engine Functionality
• Off-Line Mix Edit Functionality

Mix File Management
It was decided to maintain the simplicity of the AutoTouch Mix Pass stack. It is easy to understand, is visually oriented, and allows real-time comparison of different mix passes. So an enhanced version was created in AutoTouch Plus. The Mix Pass Stack was expanded from 5 to 8 mixes, and the ability to read from any mix in the stack and write to the top of the stack, without the need to overwrite intermediate mix passes, was added.

In addition, a completely new graphical interface, known as the Mix Tree System (MTS) was created. The MTS saves every mix pass to disk automatically and transparently without the need for user intervention of any kind. This saves the time and hassle of remembering to save a specific mix pass (after first coming up with a unique and meaningful name), and totally eliminates the issue of forgetting to save that "magic" mix pass. The mixes are saved within a graphical "tree" structure that allows any previous mix pass to be recalled and become the basis of the next online mix pass, or off-line mix edit.
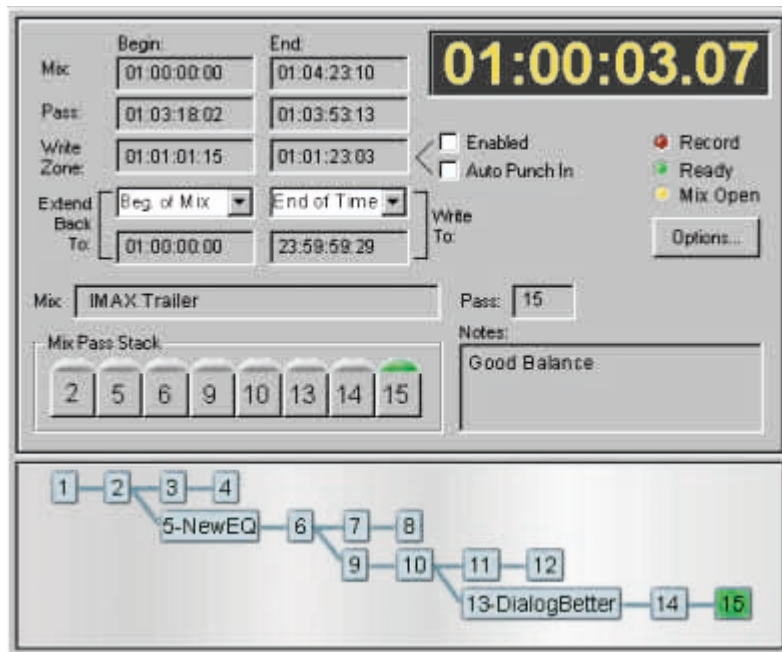
The MTS is "persistent" so that when the mix file is loaded in a mix session days or weeks later, the entire tree will instantly return. Each numbered pass within the mix tree also can be named, and pass-specific notes can be added as well.

Object Mode Control
One of the keys to efficient use of dynamic automation is the ability to quickly "enable" the objects (controls) that you want to automate while leaving the ones you don't in a READ state. In AutoTouch Plus dedicated pre-selector buttons allow the mixer to define which types of controls will be put into WRITE or TRIM enable modes. There is no need to go to the screen, as these buttons are available directly on the new Automation Master Panel. Within the GUI, however, it is possible to define an "Automation Scope" which puts specific object types (EQ Hi Band) or channels (Channel 1-10), or a combination of both (the EQ In/Out switch on channel 14) in or out of the scope so that these controls can be included or excluded from automation
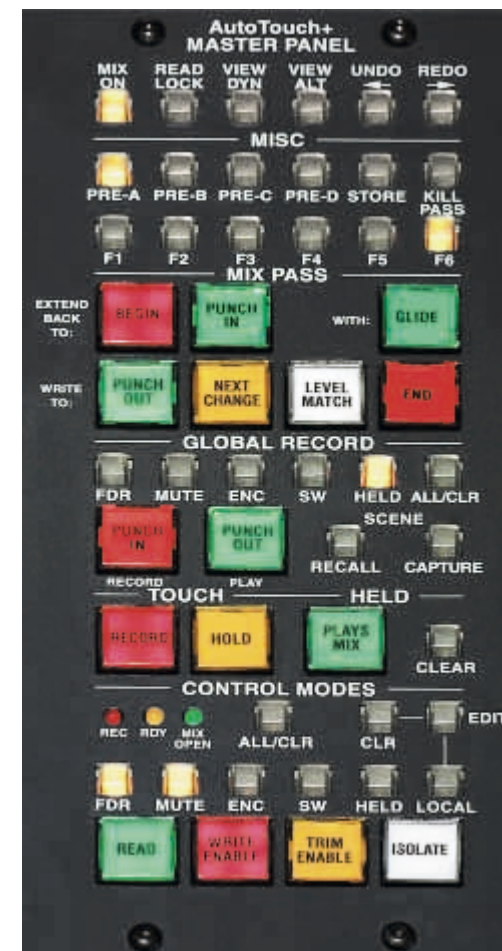
operations. In addition, a Local Selection groups is always available (and freely editable) directly from the master panel. In this way, the mixer maintains complete control over the automation process at all times.

Static Object Management
Any switch, fader or rotary control (automation objects) may be classified as a static object. Static objects act just like manual controls except that their final setting is remembered by the automation system. They may be adjusted at any time during the mix process without first having to put them into a WRITE or RECORD automation mode. The value of all static objects is maintained on a pass-by-pass basis. This simplifies the "tweaking" of the hundreds of controls within a mix session that must be adjusted, but will never move against time code. Should a dynamic move be required for a static object, the move can be simply written into the mix, and the object is transformed automatically into a dynamic automation object. This simple and effective system greatly enhances the mix process and dramatically improves mix efficiency.
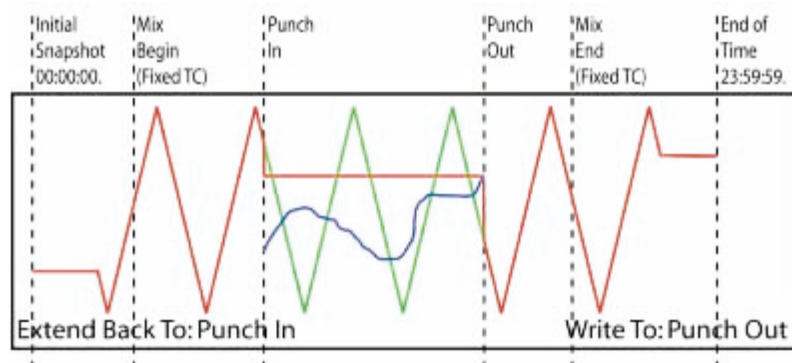
On-Line Automation Engine
Every fader and knob within the D950 M2 is touch sensitive and can be dynamically automated by simply touching the control, making the move and releasing the control. However, sophisticated audition modes have been added which allow a control value to be first auditioned, and then explicitly punched into automation record, either locally or globally. And with the unique HELD PLAYS MIX function, these auditioned controls may be set to play back the READ mix, even though the controls are being held at the audition value. This permits post production scene inserts in real time without the need to replay the mix to check the inserts.

Auto Touch Plus extends the same touch sensitive operation to its sophisticated dynamic switch automation. All switches are dynamically automated and operate in a simulated touch sense mode. Switch states can also be edited in the TRIM mode, or by using the fast

and easy Press and Hold functionality, which permits the editing of switch events in real time, without having to go off-line.

Fader TRIM data is tracked separately, so that multiple passes of "stop and go" mixing can be accommodated without the normal issues of trim build up or discontinuity. Extensive End-of-Pass merge options are provided so that the final data value can be written to the Punch-Out, the Next Change, the Level Match, or to The End. And the End marker can be set to End of Mix, End of Time, or a Specific Time Code Value. The final data value can also be Extended Back To the Punch-In point, or the Beginning (of Mix, of Time, or a specific TC point). WRITE ZONE settings allow the protection of finished sections, and the Auto-Punch-In feature allows RECORD punch-in and punch-out points to occur automatically based on time code markers. And these are only a sampling of the full range of features available in the new AutoTouch Plus Automation engine.

Data graph showing AutoTouch Plus automatically writing an auditioned level just within the punch in/out region. (Green=Read Mix; Blue=Control Moves; Red=new Mix Pass)

Off-Line Mix Editing

The recently added Off-Line Automation (OFLA) editing functionality is further enhanced in AutoTouch Plus with the addition of a complete Event List Editor. Within this edit window, switch and mute events can be moved, copied or deleted. This is in addition to the existing off-line functionality that already allows the off-line editing and merging of mixes based on any selection criteria including time range, objects (EQ, Pan, etc), and channels.

Conclusion

The AutoTouch Plus Automation system brings a new level of sophistication and functionality to digital console automation, while maintaining the ease of operation and simplicity that has made the original AutoTouch system so well received. We welcome you to sit behind a Studer D950 M2 console and experience the excitement of AutoTouch Plus Automation for yourself. And last but not least, in the Studer tradition of product upgrade paths, all existing D950 consoles, both Classic and M2 versions, are able to be upgraded to AutoTouch Plus Automation. ■

Berlin Philharmonic Orchestra:
VSP in practice

From left to right:
Wolfram Nehls (Tonmeister),
Geert Puhlmann (Sound Engineer),
Axel Sommerfeld (Sound Engineer)

A recording for DeutschlandRadio Berlin of the Berlin Philharmonic under Claudio Abbado last year presented us with an opportunity to do a surround mix in our studios. The performances were of Beethoven's Piano Concerto No. 1 with Alfred Brendel, and Mozart's Mass in C Minor. Discussions with Studer at the Tonmeistertagung in Hanover gave rise to the idea of doing another mix of the same material using Virtual Surround Panning (VSP) on the Studer D950, and then comparing the results.

There is an excellent mixing and monitoring studio at Studer headquarters, something that is by no means standard among console manufacturers. The facility is used for demonstrations, as a test-bed for new software, and for mixing. Jamie Dunn, a British sound engineer working for Studer, was our guide for the project. He introduced us to the console and assisted with technical realisation.

VSP in a Nutshell

VSP is an audio source positioning tool with adjustable room parameters that facilitates highly realistic mono source imaging by a (2 - 8 channel) playback system. It offers a variety of distinct innovations compared to regular panners:

1. Improved directional imaging (left-right panning) through switchable phase and frequency response information in addition to the usual amplitude differences between the left and right loudspeakers.

2. Generation of early reflections from a simulated room, depending on the pan position. These reflections are reproduced with the correct directional and time-delay characteristics.

Panning

The D950 offers a variety of panning modes:
a) (Conventional) amplitude panning
b) AB (pure wavefront delay panning)
c) ORTF (a combination of amplitude and delay panning)
d) "User" (a freely definable combination)
e) HRTF (Head Related Transfer Function) – head related signal processing with angle-dependent frequency control

Initial trials with mono signals delivered astonishing sonic results, although this should not really come as a surprise: phase-sensitive panning sounds more open and natural than the customary amplitude pan-

ning. Given that primary microphone arrays have long favored phase-sensitive stereophony over the amplitude-sensitive variety, it is even more puzzling that mixing consoles with phase delay panning were not developed much earlier. At present, Studer is the only vendor using this technology.

Early Reflections

Experiments with adding early reflections to individual signals likewise brought exciting results. Generating the early reflections that are virtually absent from a spot microphone signal makes it possible to image the sound source distance and surrounding space in a way that matches the actual recording acoustics. The result is considerably greater control freedom for spot microphones. A variety of parameters (size, distance, focus and density) individually modify the characteristics of each channel.

Working with these new tools first requires an extensive learning process for acclimatization with new listening habits and expectations. Not wishing to become lost in a welter of options, we tried to concentrate on just a few key parameters. That is why we deliberately eschewed the use of HRTF/frequency response modification.

The Mix

When building our mix, we set up the panning by instrumental groups. Beginning with the string players, we stored a variety of snapshots using amplitude, AB and ORTF panning. Direct comparison among the panning modes revealed a clear preference for ORTF panning, i.e. a blend of amplitude and delay panning: this created a real "sound field" that was far more natural and open than the sonic image produced by pure amplitude panning, which sounded like an obvious collection of mono sources. In this case, pure AB panning seemed insufficiently convincing to our ears. We reached a similar conclusion with the brass/percussion group. For the choir, on the other hand, we preferred conventional amplitude panning for its more

precise source location and greater distinctiveness, both of which were desirable and necessary given the greater separation between the singers and the main microphone array.

Having made the panning decisions, we added early reflections to the spot microphone signals. A very subtle application was sufficient for the orchestra spots; for the vocal soloists, a stronger early reflection component did much to integrate them with the overall sonic image. A considerably greater control range made it possible to clearly identify the soloists at all times, without making their voices project too much from the rest of the musical action. A similar effect was apparent with the choir: we were very enthusiastic about the highly intelligible lyrics and choral intensity, with consistent spatial separation. We then balanced the groups to create the overall mix, and effected a few fine corrections.

We eagerly anticipated the comparison of our complete, recorded mix with the conventional version made in Berlin. The results showed that VSP mixing represents a considerable advance. We had remained true to our sonic philosophy, with very similar balance, coloration and spatial characteristics. What was somewhat lacking in the Berlin version could be made good with VSP: integrating direct signals with the room characteristic to form a consistent whole. Whereas the Berlin mix exhibited an audible separation between a sonic event and the room response, both could be merged into a homogenous spatial experience using VSP. This was achieved by adding position-dependent reflections to the panning reflections, which also appear in the surround channels and serve to anchor sounds within the room. The possibilities and results afforded by VSP technology are truly remarkable.

We wish to thank Stefan Ledergerber and everyone else at Studer involved with the D950 and VSP, who were very receptive to improvements and novel user ideas. ∎

Studer R&D news:

Leader position in
Surround Sound

Studer presented some landmark innovations at the "Surround Sound – Techniques, Technology, and Perception" 19th international AES conference held at Schloss Elmau in Germany. Delegates could examine Studer's take on two issues concerning surround sound recording and reproduction.

Renato Pellegrini

Figure 1: Four DML panels reproducing a total of 32 loudspeaker channels – an amazing sonic experience.

In view of the very high level of interest in Virtual Surround Panning (VSP), the conference organizers scheduled several demonstrations. VSP is a pan module that has seen more than three years of ongoing development in the Studer D950. The relative merits of VSP compared to the possibilities offered by conventional mixing desks became clear from numerous sonic examples in an excellent acoustic and technical environment. The demonstrations drew an exceedingly positive response from the renowned and internationally known sound specialists present.

Delegates described the new possibilities presented by VSP tools as groundbreaking. For classical music recording in particular, VSP offers an ideal solution for combining real and artificial elements of the overall acoustic space. Spot microphone channel position, apparent source width, distance, room size and room absorption can all be individually modified. VSP focuses on human perception. In conjunction with the basic psychoacoustic principles embodied in the algorithms, participants assessed VSP as a stable and mature product. As well as capabilities for combined level and transit-time delay panning, the workshops highlighted recently added parameters like focus (perceived source width adjustment), and improved diffusion parameters. All the demos used the built-in reverberation, a proprietary Studer development that is a standard feature of the current version 2.5 Studer D950 mixing desk software. Please refer to Swiss Sound issue 45 or our web site for further information.

Our second presentation, which ran throughout the conference, featured a Wave Field Synthesis (WFS) reproduction system. The objective of the European project described in the following article is to bring MPEG-4 and WFS together in an architecture that can reproduce discrete sources, MPEG-4 encoded signals or regular 5.1 recordings via a linear

Our second presentation, which ran throughout the conference, featured a Wave Field Synthesis (WFS) reproduction system. The objective of the European project described in the following article is to bring MPEG-4 and WFS together in an architecture that can reproduce discrete sources, MPEG-4 encoded signals or regular 5.1 recordings via a linear loudspeaker array.

The demonstration used four Distributed Mode Loudspeakers (DMLs), developed in-house at Studer for experimental purposes. Each panel (the white, rectangular membrane in figure 1) can reproduce 8 discrete channels, making 32 loudspeaker channels in this particular arrangement. A large number of loudspeakers replaces sweet-spot based reproduction with a realistic simulation of the partial overall sound field, each loudspeaker channel reproducing just a short segment of the wave front emanating from a virtual source. This re-synthesizes sound waves radiating from a virtual loudspeaker positioned far behind or, as shown in the demonstration, in front of the panels. The same loudspeakers can also simulate reflections and entire room impulse responses, further improving perceived distance and spatial impression. Read more in the next article. ∎

EU-Project Carrouso:

New perspectives for spatial audio reproduction

Dr. Ulrich Horbach

Carrouso is an acronym for "Creating, Assessing and Rendering in Real Time of High Quality Audio-Visual Environments in MPEG-4 Context". The project is being sponsored to the tune of 6 million Euro as part of the European IST (Information Society Technologies) program, and seeks to achieve spatial audio reproduction via MPEG-4 channels using wave field synthesis. 10 European partners are involved, including (naturally) Studer.

Proceeding from an exchange of ideas between the University of Erlangen (*Dr. Rudolf Rabenstein*) and Studer (*Dr. Ulrich Horbach*), an initial meeting with the University of Delft (*Dr. Diemer de Vries*) representing wave field synthesis took place in May 1999. Dr. de Vries' contacts with France Telecom were ultimately crucial to the funding application. Once the formalities were settled, the 30-month project got underway in January 2001. An initial, convincing demonstration was given at the 19th AES conference at Schloss Elmau (see opposite page). Further information is available at http://www.emt.iis.fhg.de/projects/carrouso.

Beyond 3/2 Surround

The 3/2 surround format (left/center/right front, left/right surround) is already widely accepted. Compared with 2-channel stereo, it offers greatly improved possibilities for enveloping and depth imaging of sound sources and acoustic spaces - particularly when tools like Studer's VSP are deployed at the mixing stage.

Wave field synthesis (WFS) achieves a new dimension by using numerous discrete reproduction channels with individual signal processing. The number of channels is
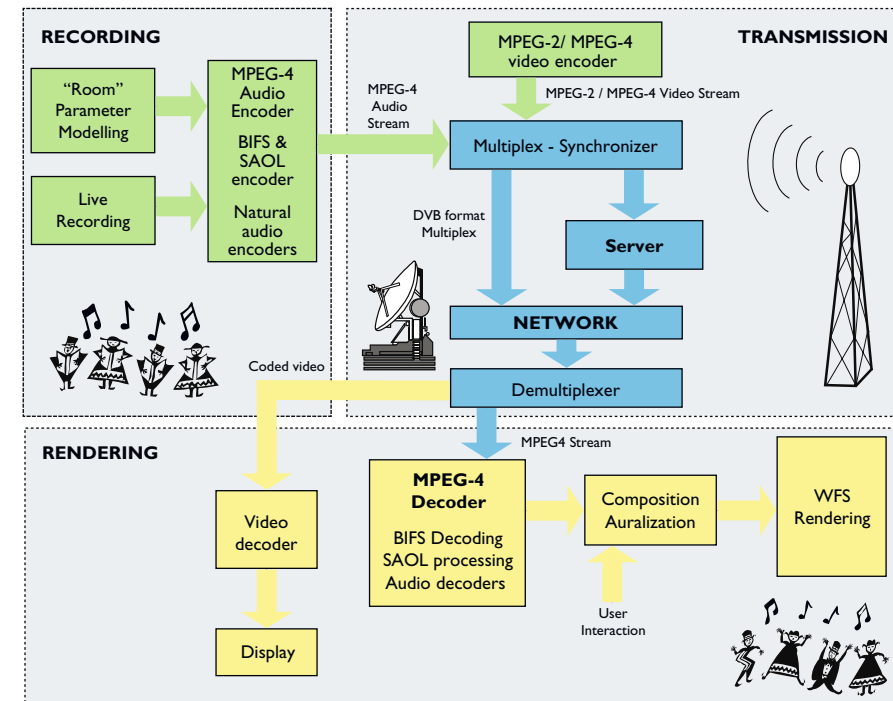

Figure 2:
Carrouso includes new recording, transmission and reproduction standards

variable, independent of the transmission or media format, and may be adapted to varying circumstances. 24-32 channels suffice for a normal living room, with the transducers tucked away invisibly behind a DML video projection screen, for example. A cinema or theatre sound system would require considerably more channels (on the order of several hundred).

In addition to flexibility, WFS offers the advantage of acoustically controlling the listening room to create arbitrary, end-user definable virtual spaces. The wave-field loudspeakers can be positioned fairly freely within the room, similar to indirect illumination. With the 3/2 format, a listener is tied to the optimal listening position ("sweet spot"); with WFS a listener can move around freely and experience a virtual space hosting the acoustic events.

Carrouso goes a step beyond this by replacing the 3/2 format with the MPEG-4 standard. MPEG-4 transmits an arbitrary number of discrete channels, preferably "dry" audio sources, along with dynamically changeable metadata. The metadata describes the acoustic characteristics of each individual source, as well as the space surrounding it (Scene Description Language). The Carrouso project includes development of new recording, transmission and reproduction standards, plus authoring tools (see figure 2). The project aims to stage a demonstration via a DVB satellite channel between Paris and Munich. ∎

Bibliography:

[1] U. Horbach, M.M. Boone: Future Transmission and Rendering Formats for Multichannel Sound. 16. Intern. AES Conference, April 1999, Rovaniemi.

[2] U. Horbach, W. de Bruijn: Neue Perspektiven für die Mehrkanalwiedergabe in realen Wohnräumen. 21. Tonmeistertagung, Hannover 2000, Tagungsband S. 141-151.

New Studer On-Air 2000M2 Digital Mixer:

Added value

Roland Casagrande

After four years on the market and more than 500 units sold worldwide, the Studer On-Air 2000 has set a standard in the audio industry. Its proverbial quality and ease of use have made it a reliable workhorse in the demanding daily environment of a broadcast studio. Few consoles are ever switched off - I myself have seen consoles delivered from the first production batch in 1997, which are running still today with the original software V1.0. The customer expressly renounced updates stating "It works just fine, so why should I change anything" – a compliment to the Studer R&D team!

Studer Systems Engineers also "go the extra mile" which is proven by the fact that more than half of all units sold have been tailored in some way to meet the customers' specific wishes. A special button for RDS (RBDS) or a complex integration of up to 20 Studer On-Air 2000 consoles in a broadcast-house system are special requests that are readily met.

Launched in October 2000, the Studer On-Air 1000 is based on this proven technology and the well-received "Touch'n'Action" user interface. By the end of the first quarter 2001 and
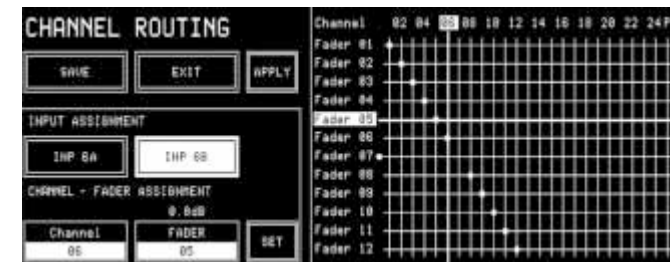
three months after first delivery, Studer sold more than 60 units of the On-Air 1000, underlining the success of the On-Air 2000 / On-Air 1000 family concept.

As the next step in this evolution, Studer has reworked the On-Air 2000 and launched its new On-Air 2000M2 at the AES 2001 Exhibition in Amsterdam. The Studer On-Air 2000M2 boasts some remarkable technical enhancements which facilitate system integration and improve the convenience of daily use. Its bright new look reflects the design elements of the Studer On-Air 1000.

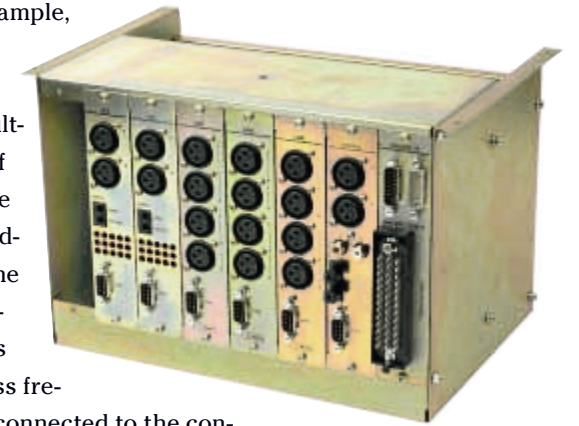*The new looks come together with the versatile input router.*

The main new feature of the Studer On-Air 2000M2 is an input router that allows the user to route any input module signal to any fader on the surface. This assignment of signals is achieved via a comprehensible and straightforward page on the touch screen. The page displays a grid with all available input modules on one axis and all available faders on the other one. Using two of the rotary encoders located below the screen, the operator can shift the vertical and horizontal highlighted lines until their intersection pinpoints the desired assignment of signals. Pressing the SET button establishes the connection which may then be secured by the Administrator in order to prevent unintentional disconnection.

sible to have, for example, 12 faders and up to the maximum of 24 input modules, resulting in a maximum of 64 input signals. The additional input modules are housed in the Input Module Extension Box. This allows signals which are less frequently used to be connected to the console without unnecessarily occupying fader channels and without implying an increase in console size.

The Input Module Extension Box is built to fit easily underneath the mixer table.

The user environments can be defined either by the Administrator or by the user himself having been granted the required access rights. Signals such as DJ-microphone or automation channels are placed on the surface to suit the individual user's preference. The personalized router setting is stored in the user profile and is activated each time he/she logs on. For users not granted the router-setting privilege, the administrator can prepare five globally-accessible presets, e.g. for news or sports broadcasts. A user can thus quickly and easily switch between external lines placed on the console surface and the original studio setting.

Another new feature of the Studer On-Air 2000M2 is its ability to accommodate more input modules than the given number of faders. Up to now the number of input modules has always been identical with the number of faders. With the new Studer console, it is pos-

The software V4.0 defines all settings such as EQ, filter, signaling or GPIO's as being input related and, as such, these are rerouted with the input signal to a new fader channel. The first consoles of the new Studer On-Air 2000M2 already have been delivered and the belonging software V4.0 will be supplied subsequently free of charge in a few weeks.

This new software V4.0 will be retrofittable (V3.0 or later), so that Studer will offer an upgrade package to all existing Studer On-Air 2000 and Studer On-Air 1000 owners ensuring that they too will benefit from Studer's latest developments. With a view to the future, it is planned to integrate the new input router as a standard feature also in all Studer On-Air 1000 consoles. Thus, the user can place the individual microphone or analog or digital signals on the surface to suit his/her preference in spite of the fixed settings.

The Studer On-Air 2000M2 mixing console offers quality, reliability and ease of use. Enhanced with the new input router, it is the choice of true professionals delivering excellence in sound. ■

Studer DigiMedia Radio Automation Version 4.0

The *fourth* dimension

A computer-assisted playout and production system lies at the engineering heart of a modern radio station. Besides the presenters, the system's functionality and operational dependability are the critical success factors. Studer DigiMedia radio automation is just such a digital, computer-based playout and production system, that more than 140 radio stations rely upon 24 hours a day. The new version 4 includes a suite of over 30 software modules with solutions for practically every broadcast application.
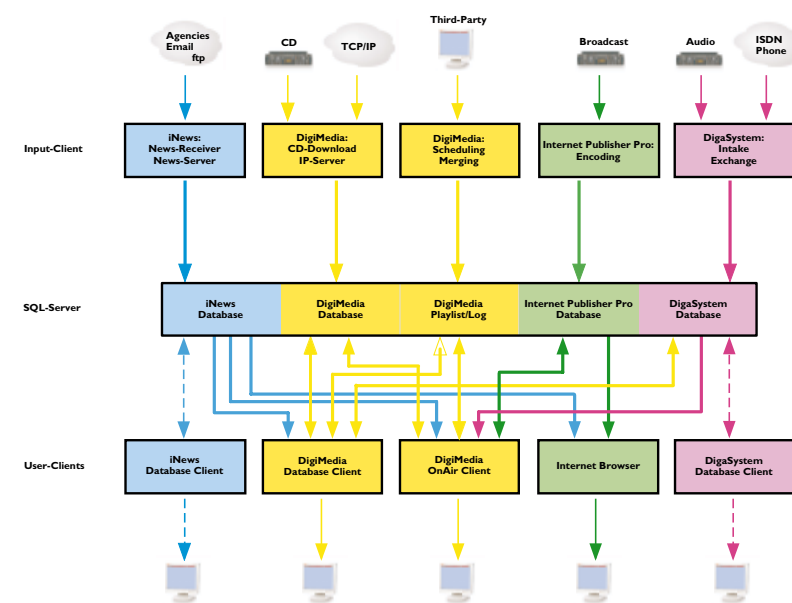
Robert Habersaat

Proven Technology

Launched in 1996, Studer DigiMedia was one of the first 32-bit broadcast automation packages. It has always offered a streamlined, user-friendly, no-compromise user interface. The system is based entirely on industry-standard hardware and runs on any Microsoft operating system (Windows 98/ME/NT/2000/XP).

Into the Future

Version 4 marks the completion of Studer DigiMedia's transition to a fully open broadcasting system with a degree of flexibility never achieved before. With Studer DigiMedia 4, customers can build on a standard SQL server platform (e.g. Microsoft SQL 2000) to fully exploit its flexibility. This includes the possibility of seamless links between Digi-Media and other systems, even to the point of sharing a common database (figure 1).

Three Editions

Studer DigiMedia 4 is available in three editions, all of which support existing software modules.

Standard Edition (SE) is an enhanced version of the current 3.5 software. It features extensive new functionality (e.g. AutoConverter) and is based on the current DigiMedia database. SE is ideal for radio stations that operate with a single database.

Professional Edition (PE) is based on a SQL database (e.g. SQL 2000) and offers not only wide-ranging functionality but also a multiple database management option and customizable user interfaces.

Enterprise Edition (EE) is essentially similar to the Professional Edition, with added connectivity to various database systems (e.g. music, production, web or agency servers). It is also ideal for multi-program operation.

Customizable User Interface

New in version 4 is the DigiMedia Database Manager (figure 2), for freely definable database screen design to suit users' needs. News editors and music sequencing staff, for example, can each work with distinct screen
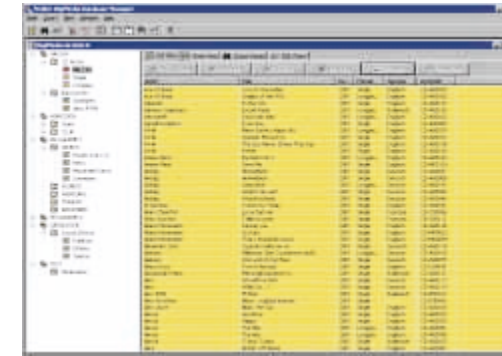
Figure 1:
Studer DigiMedia 4.0
system overwiew

Figure 2:
Studer DigiMedia Database Manager

layouts displaying a custom selection of database fields appropriate to their respective tasks.

Powerful Search Capabilities

The PE and EE editions support multiple database access (e.g. music, news, production, archive) via the same window. A meta-search function allows searches to span several databases (figure 3). Features like logical associations and simultaneous processing of multiple search criteria are of course standard.

Automatic Conversion

Today's radio stations must be capable of handling an extremely wide variety of file and audio formats. Previously, these had to be converted using conventional standalone tools like DigaCon. Now, the new Studer DigiMedia 4 database client facilitates fully automatic conversion of all common formats (e.g. *.wav, *.mp3, *.mpg, etc.) to a user-definable "house format". Conversion takes place in the background, without impacting routine operations.

CD Download

An integrated CD download tool and automatic synchronization with the CDDB title database makes fast digital transfer of CD music tracks an exceptionally simple and straightforward task.

Systems Integration

The great strength of Studer DigiMedia 4 is its capability to seamlessly meld various systems (e.g. production, music scheduling or agency systems) for operation on shared user clients. Specialized third-party products (like the DigaSystem production platform or the MHS InternetPublisherPro web publishing system) can be fully integrated with a minimum of fuss. It is only necessary for the products involved to run on an SQL database.

Multi-Program Operation

Studer DigiMedia 4 supports not only playout from multiple broadcast studios, but also complete program regionalization (core stream with multiple program inserts; see SwissSound 45) using the SplitController module. The IP Server module facilitates
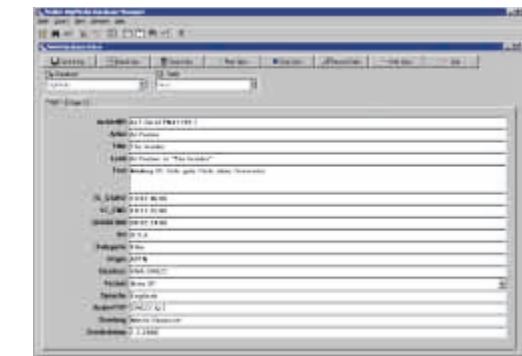

Figure 3:
Studer DigiMedia
search window

decentralized operation from a variety of sites via the internet.

Multimedia

DigiMedia 4's open architecture can manage any type of data. In addition to the regular audio database, text, still images and video can also be captured and processed. ∎

Most Recent Stations Using Studer DigiMedia
- Berufsakademie, Ravensburg, Germany
- Cityradio, Salzburg, Austria
- JTV FM, Seoul, Korea
- Radio 32 Goldies, Solothurn, Switzerland
- Radio Edelweiss, Liestal, Switzerland
- RSI Rete 1, Lugano, Switzerland
- RSI Rete 2, Lugano, Switzerland
- RSI Rete 3, Lugano, Switzerland

STUDER

Comprehensive N-1 mix minus features

Fast and easy integration offering cost-effective solutions

I/O resource share flexibility

Non-proprietary interfaces for future-proof expansion

Hot-swap and on-line DSP redundancy

On-Air Broadcast and Television Production

The Studer D950 M2 digital audio console provides a familiar and easy to use control surface ideally suited for those fast-moving news-breaking moments, or for more complex production occasions.

Every Studer console is fully supported by the Studer no-compromise approach to customer care, training and technical support. With more than 130 Studer D950 audio consoles installed world-wide, we know what it's like to have our reputation on the air - continually.

Over the last 50 years, Studer's name has become synonymous with reliability. Thousands of TV broadcasters all over the world put their trust and their professional reputation in our hands. Because our technology will not let them down. Because it is by Studer.

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