

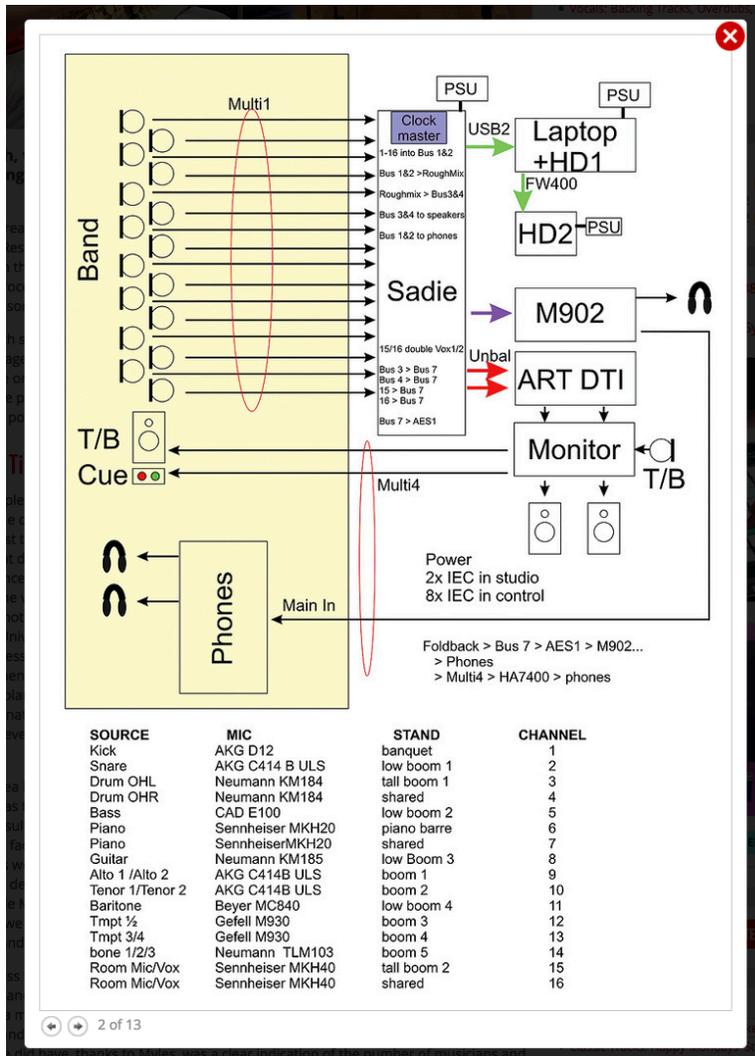
# Session Notes: Selwyn Jazz Part 1

Tracking A Big Band On Location

By Matt Houghton - This month, we record a jazz big band on location, tracing the project from the planning stages through to delivering edited multitracks to the mix engineer.

One of the great things about this new Session Notes column is that, in conjunction with the regular Mix Rescue features, it gives us the perfect vehicle for following a recording project all the way from the planning stages, through the recording session itself, and on to the mix and mastering process. The opportunity to do exactly that arose when SOS reader Myles Eastwood asked us for some help recording and mixing his jazz big band.

Covering both stages of the process in one go would result in the mother of all articles, so to make it manageable, we've split the story into two parts. This month, Hugh Robjohns and I concentrate on the session planning and the recording process itself, taking things as far as preparing the project for mixing. Next month, Mike Senior will pick up the story, explaining how he created a polished mix from our raw tracks.



Hugh prepared this diagram ahead of time and made copies for everyone involved in the recording side of things, making setup much quicker and easier than would otherwise have been the case!

It's always a pleasure to record a large ensemble in a nice space, but the down side when doing this on a small budget is that in most towns there are few venues with decent acoustics that don't charge the earth and aren't booked up long in advance. Another challenge in this case was finding a date when the venue was free and all the musicians were available — not trivial when the band is made up entirely of Cambridge University students in the middle of their exams! It's worth stressing that this took a good couple of months to line up — when you're dealing with this many people it really does pay to plan well in advance. The university connection proved fortunate, as we were able to secure free access on one Sunday evening to a hall at Cambridge's Homerton College.

Our initial idea had been that we'd assist Myles in running the session, as this would be the best way for us to help him get better results in future sessions, but it transpired that Myles was in fact the band's drummer, and that he'd actually be

playing as well as recording. It's all too easy to lose sight of important details if you're trying to do too many things at once, so while Myles played an important part in planning the session, we decided that it would be better for the SOS team to run the recording session on the day, and for Myles to focus solely on his performance and that of the band.

With no access to the venue in advance, we had only a web site and second-hand descriptions of the space and facilities to go on. As a result we decided to take a belt-and-braces approach, packing extra mics and stands to give us plenty of options on the day, and ensuring we had long cables and stage boxes to set up a temporary control room wherever seemed best on the day. What we did have, thanks to Myles, was a clear indication of the number of musicians and instruments in the band, and a rough idea of how they'd set up in a large hall. This allowed us to decide what sort of recording rig we'd need bring, and to come up with a preliminary allocation of channels and mics for each section of the band.

We decided that the most reliable and compact rig to use would be Hughs's SADiE LRX laptop recording system. The LRX is a nice compact system with up to 48 mic preamps built in, and Hugh, who we agreed would take the lead on the day, knows it well. Of course, being very familiar with all the equipment is essential for a smooth-running session!

SADiE also has a unique and very useful feature — it writes audio directly to the drive in such a way that if the equipment fails for whatever reason in the middle of a long take, you don't lose what you were recording, only what you miss after the crash. That would prove not to be massively important on this occasion, as we'd be able to capture multiple takes, but when recording a live event it can be a life-saver!



Hugh sets up a pair of Sennheiser MKH40 cardioid mics in a narrowed version of the popular ORTF stereo configuration.



The full band as seen from the room-mic position

Hugh currently has 16 mic channels and 32 AES3 digital inputs in his LRX system, and when more mic channels are needed he either borrows additional 'Slither' cards or uses external preamps with digital outputs. His Focusrite ISA428, for example, has an eight-channel A-D card, so can be paired with a second four-channel preamp to provide eight additional inputs. As there were 20-plus musicians on this session, we considered going down this road. However, given the 'natural' style of the music, and the fact that we wanted to try to keep the burgeoning list of gear portable, we thought we'd see first whether we could come up with a sensible way of getting everything down on 16 channels. We could, for instance, have opted for a miking setup based around a stereo pair or tree configuration, with only one or two spot mics. Unlike classical music, however, big-band jazz is usually close-miked — and given how little we knew in advance about the room or the abilities of the band, we decided against a minimal setup. (Had we decided on a minimal approach, we'd have tried to arrange the band so that it was spread much wider in the room, and shallower front-to-back, to avoid problems with the dry/ambient balance of the instruments.)

The key questions, then, were which instruments would be recorded as sections and which individually, and what mics and channels we'd use to capture each source. Hugh, Myles and I shared our mic and equipment lists via email, and, having agreed that it would be best to record the lead vocals as overdubs, Hugh drew up an initial source-to-mic-to-channel allocation table, as illustrated below. Some of these choices changed before the session. The pianist decided to use the Steinway grand piano in the room rather than the electric piano, and we discovered that there was no Alto 3 or 4, which freed up a channel for a second piano mic. For the piano, we settled on a pair of Sennheiser MKH20 small-diaphragm omni condenser mics, which would be rigged on a Piano Barre (a piano mic-mounting system that's now sadly no longer made), the omni pattern being essential in achieving a natural balance when the mics are placed close to the piano's strings. Other changes were made on the day, either to overcome problems or simply because we felt like using some of the spare mics we had — my old AKG D12 on the kick drum, for instance. Nevertheless, the organised approach saved a lot of time and hassle: everyone knew which mics to put in front of which instruments and on which stands, and which mics went into which XLR in the stage box, and which channel in the recording system, all of which made last-minute changes easy to manage.

In addition to the mic-rigging table, Hugh sketched a plan of the cabling and equipment, which served as a useful aide memoire for what each of us had to bring along on the day in terms of mics, cables, stands, power sockets and so on. (There are few things more frustrating than turning up with all your posh recording gear and finding that you don't have long enough power-socket extensions!) In short, then, whatever sort of music you're recording, it's a good idea to plan methodically.

With Myles now firmly focused on drumming duties, all that remained before the day of the recording session was to ensure we had enough pairs of hands available. As it happens, we were able to rope in Hilgrove Kenrick, a composer friend of Hugh's who has written for SOS in the past. He was able to provide critical ears as well as helping hands, not to mention a Land Rover Discovery that was big enough to carry all Hugh's kit to the venue!

## Setting Up



The drum overheads were originally placed behind the drum kit, but spill from the brass sections led us to move them, so that they pointed towards Myles from the front of the kit.

In order both to avoid musicians getting bored and becoming uninspired, and to give us the space and time we'd need to set up, we agreed a broad schedule in advance that would see Hugh, Hilgrove, Myles, the band leader Dave Robinson (in the red T-shirt in the main picture) and I arriving an hour before the first of the other musicians. That, we felt, would give us time enough to set up a makeshift control room and run cables to it, get the recording gear and drum kit unloaded, put mics on stands and get the drum kit set up before the hall started to fill up with people. When the musicians arrived, they'd be able to set up and warm up — for about another hour — while we got the mics in place and tested to ensure we were getting healthy signals and appropriate sound from each source.

Setting up is always time-consuming, no matter how well you've planned, and if you're doing this sort of thing for the first time, I suggest you leave rather more time than this — the couple of hours soon disappeared even with three experienced pairs of hands doing the rigging. Much of that time was spent refining mic positions as the musicians got into place and started rehearsing, but there were one or two more significant changes.

## Spill & Separation

The beautiful Steinway grand piano used on the session was miked up using a pair of Sennheiser MKH20 omni microphones, positioned close to the strings on a Piano Barre mounting system.

Given unlimited channels, we'd probably have chosen to close-mic everything individually to minimise spill — although that approach obviously makes balancing much harder and a lot more critical! In this case, we were deliberately limiting ourselves to a fixed number of channels, and so working with several paired instruments was a good compromise. In this situation, you do need to be careful about how you manage spill from one instrument's mic to another, but you don't necessarily need to eliminate it. Far from it: you can, in fact, achieve a very natural sound by working with spill — and that sound suits this style of music particularly well.

While we didn't want bass and drums washing all over other instruments, it's important that a band can feel 'together', and if you put too much physical space between musicians, it can impair their ability to perform. We decided, therefore, that we'd ask the band to set up as they would normally for a live performance, treating the position of the piano (the hardest instrument to move!) as fixed. All we then needed to do was a little tweaking of amp positions for the electric guitar and bass guitar, so that the former in particular could be turned up loud enough without firing directly into other instruments' mics; and then to adjust a few mics, such as the drum overheads, to achieve an acceptable level of spill. You can see from the picture (above) the sort of layout that we ended up with, which was quite a naturally balanced setup.

The room at first sounded very spacious: it was a very tall, large hall, with a polished wooden floor. Thankfully, there were full-height heavy black drapes that went all the way around the room. These served to dry up the sound a little, helping both the musicians and the recording, and making the photographer a little less obtrusive!

## [A Body Blow To The Snare](#)

The recording was captured — and cue mixing performed — on Hugh's SADiE LRX system and Windows laptop, with monitoring in the control room taken care of by small PMC monitor speakers and AKG K702 headphones. The box on the right of the recording system is Hugh's custom-built talkback unit, which controlled the speaker, recording light and mic at the front of the hall. You can also see here in a little more detail, including the usefully narrow meters for every channel, the main SADiE screen setup used.

After doing some sample recordings during the warm-up, Hugh, Hilgrove and I all noticed that the snare drum seemed to be rather lacking — it sounded very snappy and lacked body, and the result was that the groove felt completely wrong. Rather than rush out and change the mics, we invited Myles to come into the control room and listen back to his instrument. He explained that, being slightly paranoid about his drums spilling on to other instrument mics, he'd deliberately tuned his snare drum high. Another reason for the high tuning had been that he'd been comparing his drum sound with that of some favourite recordings, which seemed to be much, much brighter.

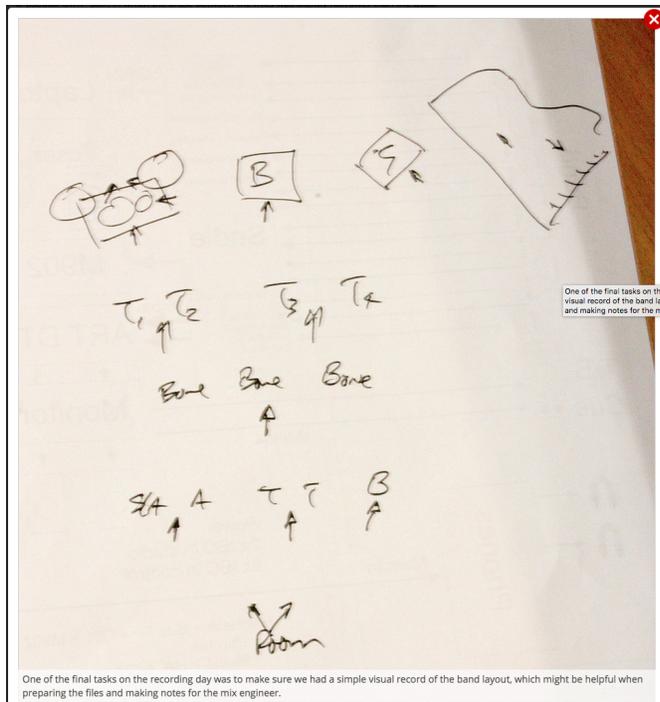
What he'd not factored in was that the sounds he was referencing had already been subjected to processing and EQ, and, by tuning so high, he was losing all the 'meat' and body of the snare sound that gave it its power. We explained that we'd much rather work with spill and have a good, full-sounding recording, and he promptly went back and tuned it back down. This brought about a very audible improvement to the sound of the drum in the room, but we still weren't hugely pleased with the sound coming through the mics, and thus decided to try some alternative mics and positioning options. We started by replacing the (usually wonderful in this application, but too thin-sounding here) Beyerdynamic M201 with a Sennheiser E664. As this didn't yield a huge improvement, I suggested trying another tactic: directing my 'spare' AKG C414 B-ULS condenser mic, set to cardioid pattern, towards the snare from the side, outside the kit at a distance of somewhere between one and two feet. This picked up a little more spill, but it wasn't unmanageable, and the sound was much improved.

The only other instruments where we really needed to work more on the levels were the electric bass and guitar. The guitar sounded far too low in the control room, and a quick trip to the hall confirmed that the issue was down to the level of the amp in relation to the other instruments, not the gain on the mic. Hugh worked with the guitarist to set a level that created a better sound in the control room without drowning out the sound of the band in the room for adjacent musicians.

The bass, by contrast, seemed to be leaking into just about every other mic, making it hard to attenuate it in the monitor mix. A little adjustment of the amp position helped, but low frequencies, of course, radiate out in all directions, and the best tactic turned out to be applying high-pass filters to other tracks within SADiE. There being no significant low bass from most of the other instruments anyway, this worked rather well.

With the piano taking up two channels compared with the planned one, but no second pair of altos to worry about, we were left with a spare pair of channels for a stereo room mic. Hugh opted to use a pair of Sennheiser MKH40 small-diaphragm cardioid condenser mics in a 'pseudo-ORTF' pair, in which the angle between the mics was slightly narrower than the usual 110 degrees, simply because the band wasn't particularly spread out. We could have used other placements, but Hugh was confident that this would produce a natural sound, with a bit of room ambience and a good stereo image. Not only would this be of benefit to us in the control room, but we thought it would also provide a sensible reference for the mix engineer. We rigged these mics up on a heavy-duty Sontronics Matrix 10 mic stand (which was on wheels and thus easy to move in search of the best position) at the front of the hall, some distance away from the band.

## Mission Control



One of the final tasks on the recording day was to make sure we had a simple visual record of the band layout, which might be helpful when preparing the files and making notes for the mix engineer.

'Control room'. Hmm... that's a description that applies quite loosely in this case! In some respects we were fortunate, in that we were able to set up in a room along a corridor from the hall, and this meant that everything we could hear in there was nicely isolated from the noise coming directly from the hall. The room, though, was far from ideal: it resembled a theatrical make-up room, with all walls being dominated by mirrors surrounded by light bulbs, and was presumably used as a part-time music rehearsal room, as there was an upright piano lurking in one corner. Not only did this make the task of capturing the event for posterity on camera rather challenging, but it was far from the optimum acoustic environment for monitoring — and, of course, permitted no visual communication with the band leader or anyone else in the hall. Hugh would normally use a remote camera and TV monitor for that purpose, but as you'll recall, we were trying to travel light!

Nonetheless, Hugh was able to set up his SADiE system, along with his smallest PMC DB1A speakers (isolated from an office-style desk via Auralex MoPads), and some decent open-backed headphones (AKG K702), which would take the room out of the equation when necessary. While he could have relied entirely on the headphones, this wouldn't have been ideal. It was just as important that we were able to play back the mix to the band in the room as it was that Hugh, Hilgrove and I could hear what was going on.

The lack of visual communication was overcome with Hugh's custom talkback system. This has featured in SOS before, so I won't dwell on it here: in essence, it consists of a control unit with a talkback mic and the means to route a signal to a speaker in the hall and to control a 'recording on' light. Hilgrove and I were also on hand to act as messengers where more direct communication was required.

Ordinarily, a big band like this would have a dedicated bandleader, akin to a conductor in a classical orchestra, but that wasn't the case here. Normally, their bassist performs the role, but on this occasion saxophonist Dave Robinson stepped up to the plate. Unfortunately, this arrangement turned out — through no fault of Dave's — to be rather less than ideal. First, it meant that it wasn't possible to have direct communication between the control room and the bandleader at all times; and second, it's just so hard for someone to focus on the sound and performance of the ensemble when they're sitting within it, as not only do they need to focus on their own performance, but they can't hear the natural balance of the band in the room.

What this translated to in terms of the first performances was a lack of cohesion and, for want of a better word, 'balls'. The rhythm section felt hesitant, it seemed as though the brass sections in particular should be 'digging in' a bit more, and the solo parts lacked the flair and vibrancy you'd expect from a jazz band — it was almost "like classical musicians playing jazz", as one person put it. While this was apparent to the three of us listening in the control room very quickly, it was understandably less obvious to Dave, given his physical location within the band while playing.

Hugh, Hilgrove and I discussed the problem, and decided to invite Dave and some key members of the band into the control room to hear back the first recordings. We didn't highlight any problems, but just asked them to listen and tell us

what they thought. The puzzled look on all their faces suggested that they noticed something was awry, and to our relief Dave, Myles and others all pinpointed exactly the same issues that we'd identified. What's more, they didn't require encouragement to discuss how to correct them to get a better performance — they promptly returned to the hall and zipped through a few takes with much more gusto!

## **Vocals: Backing Tracks, Overdubs, & Frustration**

We'd decided that the vocals of lead singers Abtin Sadeghi and Emily Sherwin would be recorded as overdubs, partly because spill from vocals on to instrument mics would be all but impossible to remove if the performance went pear-shaped, and partly so that we could capture a nice, isolated vocal sound that could be worked on at the mix stage. It would also enable us to have more control over the monitor mix in the vocalists' headphones.

With the rest of the band thanked and dispatched to the pub we set up two cardioid mics at the front of the hall, with their backs to some thick curtains to reduce the room sound being captured. SADiE's LRX is geared up to record a live stereo mix time-aligned alongside the individual source tracks, and Hugh used that facility to build monitor mixes as we went along, making it easy to play back takes for the band to audition. It's also very easy to remix and punch in to this live stereo mix, if necessary. Having identified which takes we'd record the vocals against, the plan was to use these live monitor mixes as the artist cue mixes, but it soon became clear that the vocalists wanted slightly different balances to assist their pitching and rhythm, so Hugh remixed the band tracks on the fly to create a balance that suited their preferences.

Both vocalists were soon happy. Abtin's takes went without problem, but Emily was suffering from the mother of all colds, and this made it very difficult for her to nail all the notes in a single pass: her voice was audibly straining at times. By punching in a few overdubs of these notes and phrases, we achieved a passable result, but we all decided that overdubs at a later date, when Emily's voice had returned to full strength, would be preferable.

## **What Next?**

After a brief spell discussing with Dave, Myles and both vocalists which takes were best, we hastily packed up and made our way home. Our work wasn't quite finished, though, as Hugh had still to prepare the recordings for mix engineer Mike Senior.

About 10 days after the session, Myles got in touch to let us know that Emily's voice had returned, and Hugh sent the required stereo MP3 cue mixes for Myles to use when re-recording Emily's vocal overdubs with his own system. Myles then returned the clean vocal tracks to Hugh for sync'ing in SADiE against the original takes.

Hugh then dashed off some very simple 'proof of concept' mixes so that Myles and his fellow band members could approve the various take choices, as well as a couple of edits Hugh had been asked to make between takes in one or two tracks. These mixes were closely based on the original monitor mixes made on the day, but with a couple of the solos lifted in level where appropriate, a little compression added to the vocals to help them sit on top, and some overall reverb to gel everything together.

Myles was happy and quite enthusiastic about the way it was sounding, so Hugh then simply defined edit points at the start and end of each required song to make sure that all the individual audio files were of the same length and started at the same point, and then exported all the tracks as separate 24-bit, 44.1kHz WAV files. The whole lot was copied to DVD and posted to Mike for him to mix in earnest.

As far as the 'housekeeping' was concerned, each of the three numbers we'd recorded was given its own folder on the DVD, to contain all of the associated audio tracks, while each track's WAV file was named with track number, source name, and song name. This was to ensure that they were (a) uniquely identifiable, (b) would load easily into Mike's Reaper-based mixing system in the appropriate order, and (c) the source names would be readable in Reaper's track and mixer displays. This last point wasn't essential, but it makes life a lot easier and was a simple professional courtesy between Hugh and Mike.

With the handover to Mike, our job was done. We put Mike and Myles in touch, and left Mike to get on with the mix — which he'll tell you all about next month.  
( On to Part 2 )