

A METAL MUSICIAN'S GUIDE TO PRE-PRODUCTION

BY COLIN E. DAVIS

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This guide is intended to help metal musicians go through the various steps that lead to the recording of a quality album. Although I'm primarily focusing on musical styles of metal, almost all of what's discussed here can be applied to any genre of music. The viewpoint that I take is one of total professionalism and the standard that I have regarding recording is the same kind of standard that the big name producers have for their own productions. At the same time, while I try to focus on setting the standards high, I also realize that in metal music we're often not working with large budgets. But if the steps discussed in this guide are taken, they will greatly improve the final sound of one's album.

Although this guide seems quite detailed, I've tried to keep it somewhat concise to make it more accessible to readers (I wish it could be simpler). I think that I've covered most of the main topics I usually discuss with musicians on my own, and I hope that I have touched on everything of major importance at least briefly. In the future I'll release more instructional materials and update this guide based on your input, which I welcome.

Everything written is just my personal opinion and most of what is discussed can be adapted to your specific needs. Recording is an art as much as it is a science so your results may vary from mine. I address this subject from the perspective of having recorded heavy metal music for 17 years, having run a mastering studio for 12, being a musician, and generally focusing much of my time towards an audio related direction for most of my life.

Before you plan your recording sessions, you might consider the following 7 subjects:

1. Equipment considerations
2. Band Practice
3. Using a click track
4. Budget considerations
5. Selecting a studio and engineer
6. Recording at home
7. Conclusion

1. Equipment considerations

Instruments: Every player needs to consider whether or not their own instruments are appropriate to record with. Sometimes instruments only need to be tuned up and they are ready for use. Other times an instrument that may be on hand is comfortable to play but is just not a good enough quality instrument to record with. In that case it's worth asking around to friends to see if you can borrow a high quality instrument to use for the recording session.

In general, new guitars and basses in the range of 800 - 1200 US Dollars and above are what I would consider truly professional instruments. This being said, you can probably buy a good quality guitar or bass for less if you buy it on the used market. You may have to upgrade pickups or other parts on less expensive instruments.

With bass guitars, the quality of the instrument is more important than with an electric guitar. With an electric guitar, more of the sound comes from the amp and the pickups than from the body materials (when using distortion). With a bass, the construction and woods used are more important. If you don't have a really good quality bass, your entire mix will suffer. There is a certain depth and punch in professional recordings that can only be achieved if the bass guitar delivers a tight, percussive and deep sound. Only well constructed basses with quality woods and construction will give this kind of sound. Pickups are important too, but not as much as the bass body and neck materials. Borrow a bass if you need to so you can get a great tone.

If you're going to install new pickups in a guitar or bass, I'd say that generally active pickups are more appropriate for basses than for guitars. With basses, active pickups really help to get you a modern and clean sound, but with guitars they suck out too many of the natural dynamics of the guitar and they tend to override the tonal qualities of the instrument more than passive pickups. For metal, my favorite guitar pickup is the Dimarzio Evolution because it delivers high gain while keeping the dynamics and the tone of the guitar intact.

Strings: The brand of strings you use is not ultra important, although some types of strings last longer or have more or less tension. I like Dean Markley Blue Steel for bass and Dean Markey nickel plated for guitar. When recording a quality album, I personally change strings for every song on both guitar and bass unless the tracking is going very fast. Actually I change the most played strings like the three or four lowest strings and change the others less often. I recommend this for the highest quality results - or change the strings every few hours of actual playing time.

There are four stages of string wear I'd like to bring to your attention. The first stage is when the strings are totally fresh and they're very bright and bouncy. This stage passes after about 15 or 20 minutes of playing. The second stage is where that initial extreme brightness has fallen away and the strings are stretched so that they are staying in tune easily. This is when you want to record. The third stage is when the strings lose that second stage level of brightness and bounce and are just "starting" to get dull. It is here

that I change the strings when recording. I label them appropriately and use them again for live performances or band practice. Stage four is where the strings are dead or near dead and I throw them away. The same rules apply to both guitar and bass strings.

You can test the wear of wound strings by tapping them with your finger percussively over the body of the bass or guitar so that they hit the neck frets and bounce back. Tap each string and notice that after you play them for some time, the most played strings will have lost a certain amount of brightness and response. Once you notice this, you can check strings and know when to change them. Strings that are past stage two are fine for other purposes, but for recording, stick to stage two wear for the highest quality results.

Set-up: It's very important that string players get their instruments freshly set up before recording. It's **well worth** hiring a technician to do this for you. Try to bring all the instruments that you'll be using to the same tech. If you show the tech how you play (how hard or soft you personally play) before you leave the instruments with him, then he can better adjust your intonation and action so that it will be right the first time. Having your guitars intonated before recording is one of the most important things you can do and should never be skipped unless you have done this very recently. And while you're at the tech's place, have him fix any other issues you may have with your instrument, like buzzing, bad switches or jacks, etc.

Also this is a good time to evaluate your string sizes and decide if you want to get some bigger strings for instance. Many metal musicians tune down and if for example you are a guitar player tuning to B or lower, you ought to have a low string that is between 59 and 64, depending on how you play. For bass, tuned to B or lower, the low string should be at least a 120 but a 125 or bigger is usually better. I personally string my own 6 string guitars that are tuned to Bb with: 62, 50, 38, 28, 17, 12. And 5 string bass: 128, 105, 85, 70, 50. Dean Markley makes a Blue Steel ML 5 string bass pack that I always use. I purchase single strings in 10 packs or bulk for guitar.

Some may think this is trivial but guitarists should think about what kind of pick they use. It's my opinion that guitar picks in the range of 0.70 to 0.90 are best for recording. Anything thinner or thicker will affect the sound of your tone. Too thin and you won't get as much girth in the tone and too thick and you will knock the strings slightly out of tune every time you hit a chord, especially if you have a tremolo.

The last thing I will say about stringed instruments is that a lot of the quality of the recorded tone comes from the player's actual playing style and a technique that is accurate. If you're struggling with playing the parts, it's not time to record until you get it worked out at least to where you can play the parts well most of the time, and then you can punch in the best performances. Keep in mind that punching in will take up extra time and energy in the studio and every musician loses some of their talent there because of stress, so you will spend more time than you expect to get performances right.

Guitar amp tone: For rock and metal, it's pretty easy these days to get a solid, professional tone suitable for recording. It's much harder to capture this tone with mics in

the studio, but getting a good tone at band practice is not that hard anymore with modern equipment. You'll need a good quality stringed instrument that's set up properly and a good quality tube amplifier with new tubes. Up until about a decade ago, there were not too many great amp heads available on the market. But now, there are many fantastic tube amps being made so things have changed a lot. Its possible that you may not yet have the amp head that delivers the ultimate sound that you personally want, but if its one of the many newer tube heads that are on the market, it will definitely deliver a great tone that most listeners of your album will think sounds great if it's recorded properly.

Besides many new high gain amps out now like Bogner, Framus, Engl, VHT, Krank, etc., there are the two mainstays of modern hard rock and metal: The Peavey 5150 and the Mesa Rectifier. These amps are also readily available on the used market if you want to save money. The 5150 is based on the design of a Marshall but with a lot more gain and less noise. It always delivers a fantastic sound with a very present midrange. You can't go wrong with this head if you are unsure of what to use.

The Mesa heads are also very common and popular but they're harder to dial in. If you have a Mesa and know how to dial it in, you'll get a really great three dimensional tone, and aggressive treble. Again, there are many new high gain tube amps out there, and to me they all sound great, only different. Of course if your engineer knows a particular amp well, then by all means use it and have him help you dial it in. If your engineer knows your style and is good at getting great guitar tone, just make sure you bring in a good condition tube amp and you and he can work together to get you a great tone. Put some new JJ tubes in the head if they're not that new already. <http://www.eurotubes.com/>

If you're using a solid state amp or a modeling amp, and if your engineer is good, you can get a decent tone, but not as good as with a good modern high gain tube head. There may be some exceptions to this soon, like with the Kemper modeling amps and things designed like this, but in general, a good and well maintained tube amp of any brand will sound more present, three dimensional and punchy than any solid state amp, preamp or modeling amp.

I could say a lot about bass heads and bass amps, but its not as important because if you have a good bass, most of your tone will be coming from the bass, through a direct box right into the recording equipment. If you get a great direct sound you wont even need to mic up your bass amp unless you want to. Then again some bass players need to record their amp sound to get their own personalized tone, and for those players, they already know what they want so I don't need to go into it in this guide. One note: Bass amps need not be tube driven, in fact many great bass amps are solid state and that's fine for bass heads which are generally not delivering a distorted tone like guitar amps do. A well designed bass head can sound great with tubes or without tubes.

The last thing I'll say about tone is that most people who have a very hard time getting a good tone, or who experience other players criticizing their tone a lot are often lacking in their own internal "picture" of their tone. One way to start to develop this is to find a band that has a similar style and that's known for having great guitar or bass tone and use

the gear and settings that they use. Then from there you can move on and develop your own tone. And if you can't get the sound you like from that set up, its time to look at your playing style and technique, or again it can be a mental issue where you are not hearing your own tone realistically. One of the things that happens after going into the studio many times to record your albums is that you learn to hear how your tone translates to tape and this will help you select gear that sounds great to you over time.

I have friend who plays professionally and is known for his amazing bass tone. I remember back 20 years ago when he was practicing with one of his first metal bands. The tone he had back then was basically the same tone he has today, even though the gear he was using was not as good. He told me that he wanted to get the same tone that Overkill, Anthrax and SOD got on their records so he just copied what he heard and saw from those bands. He knew what he wanted to hear and he went for it immediately. And he knew that he needed to start with a model of tone that was already developed. Since he was able to achieve good tone very fast by doing this, he didn't have to suffer all of the trauma that players deal with who struggle with finding their own tone for years on end. I know guitarists who have done the same thing. After a player gets a professional tone this way and is confident with the tone they have, their ear develops with that tone as a model, and it becomes easier to move forward over time to develop a more customized sound. Its also better to use a very simple amp and speaker set up until you are totally satisfied with your tone before getting into complex rack and pedal setups, in my opinion.

I struggled with guitar tone for many years myself, but I started playing metal in the early to mid 80's when there was just not that much good gear on the market. But as my ear developed from playing more and more and then from working as an audio engineer, I was able to figure out how to select a guitar that gave me the sound and feel I wanted, and then to plug into virtually any good quality amp and dial it in to get a good tone. Of course it helped that good amps started coming out in the mid 90's. Right now, I use a Peavey 5150 for live performances because it's so easy to use and always sounds great. I don't have the time to keep messing around with amps and endless possibilities for my entire career. I want to plug into something that sounds good and get to playing music.

This being said, I can appreciate the act of amp collecting for the sake of experiencing new sounds for the fun of it. But this is not the same as buying amp after amp and hoping to find the perfect tone, which never comes. That is usually an issue with a player's internal picture of what they want or their own playing technique.

Tuning: This is a related subject that's so often under-considered that I should discuss it a bit here. Tuning bass is rather straight forward and as long as you stretch out new strings a bit, they will go into tune and stay in tune fairly easily. With guitar strings, it's a totally different story.

Stretch your strings **a lot** - over and over. Pull on them over the neck and over the bridge, they won't break. Pull on them and shake them heavily, then tune them. Then do it again. Then do it again. Then do it again.

First let me say that using a tremolo bridge is an invitation for problems and if you can do it, have one guitar for recording with a fixed bridge and a second guitar with a tremolo for your solos if using it is part of your lead style. If you are going to record with a guitar that has a tremolo bridge but you don't need it for your style, have your technician block it from moving in the back and re-set the guitar. If you are going to use a tremolo for recording, use three thick springs and of course have it set up again after changing them.

Anything you do to the guitar, even changing the sizes of your strings will slightly knock it out of intonation and it will need to be set up again. Again, skipping the set-up and intonation process before recording is not a good idea. ☺

With tremolo bridges they are most stable when the fine tuners are set to the middle of their throw. When you lock the nut, the guitar will go sharp, so account for this and tune again after locking.

Try to keep the nut unlocked for a while until the strings stabilize (stage two) before you lock the nut. Tuning with the head tuners only until the strings are stable will help keep your guitar in tune.

Use a great tuner and for live or at practice and one that has a mute function so you can do it privately. I use a Boss pedal tuner (and a Boss NS-2 noise suppressor with the mute knob) for many applications but I have about 3 or 4 tuners around that I use for different things. Try to use one brand of tuner for both guitar players so they are both at the same standard. If you plan on getting into setting up your own guitars, get a strobe tuner.

It's common for guitarists to tune in a hasty fashion. They commonly do not spend the extra time to make sure that their strings are perfectly tuned and they sometimes skip tuning strings that they don't use that much – big mistake. Whether you are at practice, live or in the studio, take all the time you need to tune every string to perfection. Playing out of tune, even slightly is bad for you because you want to train your ear to hear fine nuances and listening to instruments that are slightly out of tune will damage your internal perception. When you really get to know your tuner and how your guitar commonly reacts, you can tune live accurately and quickly. When recording, take all the time you need.

Speakers: The only thing I will say about guitar speakers here is that I like the Celestion brand best and I prefer Vintage 30's. I also like mixing other Celestion models with V-30s while using the V-30s as the base. You can use any speakers that sound good to you, but I generally find that Celestions give a perfect tone for modern metal. New speakers will need to be broken in over a short time, or buy speakers that have been broken in already.

As an engineer, I tell bass players to use any speakers they want to use because I will mostly use their direct sound and I am more interested in bass guitar selection than bass

speaker selection. Use what sounds great to you and your engineer. As usual, the more expensive and well built equipment will yield the best results.

Drums. Since its common in metal to sample the drums, many players feel that they can take the easy way out and not change their heads. I am sorry but no matter what, a big part of your drum tone is coming from the sound that enters the overhead mics, so fresh and tuned up heads are a must before you record drums. Bottom heads (use 1 ply) are ok unchanged if they are less than a year old and do not have any dents in them (except bottom snare –change this when recording).

It's also important that someone who is familiar with drum tuning - whether it's the drummer or a friend or the engineer - take responsibility for tuning the drums properly and keeping them in tune. A great video teaching drum tuning is Bob Gatzen's DVD "Drum Tuning: Sound and Design". Search it out online.

Tuning time is also a good time to look at all the rims and to replace any rims that are bent - its pretty cheap to replace a few bent rims, and well worth doing because otherwise a drum can never get into perfect tune.

Inexpensive drum sets built before the early to mid 1990's were often not that great sounding in my opinion. Then drum manufacturing technology improved and it became possible to get a good sounding drum set for a lot less money and it became possible to get a great set for the price of a cheaper set from a decade before. Watch the Bob Gatzen video for tons of great information on drum selection if you plan on buying a new kit. Personally I like Maple shelled drums more often than other types of wood, but this is personal preference. There are many great sounding woods in use these days. Buy what sounds good to you.

For me, if a drum set is in tune with new heads, is of moderately good quality and is played correctly, it will sound good enough to record - but if the cymbals used are cheap and not well selected, this can ruin everything else. It takes time to develop a good ear for cymbals, and you can ask your engineer to help you with selection if you have enough cymbals to choose from. If you have a friend who will let you borrow some cymbals, bring them with you to the session so you will have more to choose from. Up to a point, the more expensive the cymbal the better the quality in general. Except for small cymbals, cheap cymbals sound cheap most of the time.

Drum head selection is a personal issue but in general coated heads have less attack and therefore the sound of the drum and its resonance takes priority. Clear heads have a high frequency attack sound and are more appropriate for metal and modern tones in my opinion. Single ply clear heads can sound amazing on a great drum but wear out quickly. Double ply heads often have too much of a plastic sound, so for me, I use Evans G2 heads which use 2 plies that are very thin - a great combination of attack, tone and life span.

If your studio engineer says that he's comfortable tuning drums, and you're not, book extra time and have him help you skin the drums. Bring a hairdryer to help seat the heads. Drummers who haven't taken the time to really study drum tuning are encouraged to start with the Gatzen video and start practicing drum tuning. I've noticed that a lot of drummers aren't that experienced in this area and although I understand that drum tuning looks difficult at first, it's not that complex once you get the hang of it, and after you do, your experience of playing the drums will be much more rich for the rest of your life. Also the bands you play with will benefit immensely. Drummers really should become proficient in drum tuning if they are going to play drums professionally in my opinion. Thankfully there are also some great new tools for tuning drums like Drumdial and Tune-bot. Check them out.

If you own a couple of snares or can borrow an extra snare or two, bring them all to the studio plus an extra snare head or two with you. Snare selection is also very personal, but having options is nice. Generally 14 inch snares 5 to 8 inches deep will be versatile enough to make you and your engineer happy. Finally, check all your drum hardware for stability, make sure you have extra cymbal felts and grab some Moongel for the toms.

2. Band Practice

When you're preparing to record, the band practice studio is your pre-production studio. Some bands have a small computer recording setup and they can take some time to mic up the instruments so they can get a pretty decent sound, but if not, a simple 2 track micro recorder like one of the Zoom Handy Recorders can get you a great sound if you take the time to move speakers around a bit and find a good spot where the recorder picks up everything clearly.

You don't have to record every band practice, in fact doing so will create excess stress, but choose certain days to do this. As you get closer to the recording session, record more often and give copies of the recordings to the band members to listen to at home. Ask everyone to critique themselves and adjust their practice and performances towards improvement. This is also the time to really work on song arrangements and make sure the songs flow smoothly.

This process can be stressful because everyone is becoming aware of the imperfections in their own playing and in the playing of others. Be careful with the way you speak to each other and the way you critique others out loud.

That being said, this is the time to bring to attention the aspects of each other's playing that need work. Try not to set the bar so high that you will make people quit because you're asking them to do what they could never do. But don't set the bar lower than what you can actually achieve by saying things like "We can just punch that part in, don't worry about getting that perfect." If you can cleanly play difficult sections of a song most of the time but not quite every time, you can punch in, but if you can only play a certain part occasionally, you're just not ready to record that part.

3. Using a click track

A click track is a pre-recorded metronome beat that is set to the appropriate tempo(s) for a song. Usually the drummer listens to this track and plays along to it. The rest of the band then plays along to the drummer and this way the whole band is playing extremely stably.

Up until recent times, a metronome was commonly used to practice music but not to perform with as often. Now, musicians commonly play with a click track in their headphones and use it at practice, live, and in the recording studio. Most pop music albums that are released these days are recorded to a click track. Many of the more well produced metal albums are also recorded to a click track. In recent times, metal musicians and listeners have become accustomed to this super tight and precision sound.

There are a couple of different things that are accomplished by practicing and recording to a click. First of all it trains your mind and body to hold a stable tempo so that when performing, the band is tighter because everyone has trained themselves to a certain standard of time.

Secondly, playing to a click track during the recording sessions serves another purpose - it allows the recording engineer to record multiple takes of a song, or a section of the song, and cut up the parts and interchange them. For example, if the drummer plays a song three times from start to finish to a pre-recorded click track, the recording engineer can go through and “comp” the best sections of each performance together to make one complete song that is a compilation of the best sections of the three performances. And if the drummer wants to just punch-in a small section of the song, it’ll be played to the proper tempo so it will fit in perfectly. This technique allows albums to be recorded which are tighter and more accurate sounding than what can be accomplished without this technique.

If you play a genre of music where the standard that is set by the popular bands is that of using a click track, then the only way to achieve a comparable sound is to do the same. If you are recording some styles of jazz or another genre where the more popular bands commonly do not use a click, then using one may make your band sound too sterile for that genre. So this is something that very much depends on the style. For metal music, I would say that using a click track for recording is definitely the standard these days. With computer software you can program different tempos into your click track so you can have the advantages of the tight sound while not being locked to one tempo.

How to prepare a click track:

The best way to create a click track is with computer recording software. If you have someone in the band who is using some software at home, you can have them create a click track for each song. If you just don’t have anyone in the band or close to the band who can do this, you’ll need to hire your recording engineer to create click tracks for the

band to practice with before the recording sessions. Then you can use the same tracks to record with later. The bad part about this way is that if you decide to change any tempos during pre-production, you have to go back to the engineer each time.

With regards to creating your own click, my opinion is that every band really needs to have at least one person who is using recording software anyway because there's so much that can be done to get the band to sound and play more professionally with a small recording setup. Going without this really leaves musicians in the dust, I think. This is a topic for another time but a band can usually gather a spare computer and buy a cheap audio interface and software (check out Reaper which is very cheap) and use the setup for creating clicks and recording band practices within a week or two.

If your band writes songs that have no tempo changes within the songs themselves, then you can just buy a cheap digital metronome and run it into the drummer's headphones. And some drummer oriented metronomes can even be set to change tempo once or twice within a program, but generally, for bands that have multiple tempo changes within a song (many metal bands), only digital recording software can accommodate this. If you want to see how to set up a click track in Reaper, see [this](#) video. And if you want to see how to change the tempos within the songs, see [this](#) video. I chose Reaper to show you because it's inexpensive (donation) and totally professional, but every recording program has its own way of doing this whether it's Pro-Tools, Nuendo, Cubase, Sonar or whatever. You might want to choose a program that a friend is also using so you have someone to go to for questions, or just use Reaper and look at tutorials online. Personally, I use Cubase and Nuendo for recording, and in those programs, you create a "tempo track" and drag the tempo up and down according to the grid wherever you want the tempo to change.

When I program a click track, I try to get the drummer and guitarist to come to the studio and together we work through the tempos. The guitarist brings his guitar and a practice amp and the drummer brings his sticks and a practice pad. I take a band practice tape and a digital metronome and I take notes about the song arrangement and the recorded tempos.

If a part of a song is repeated and the intent was for the tempo to be the same each time, but in the practice tape they are different, I try to find one tempo that works for that part every time its played. Songs can have any number of tempos, depending on the style and arrangement.

After the band practice tape has been deciphered, I program the click track by starting with the first tempo in the song and having the guitarist and drummer play quietly through the parts. As we encounter each tempo change, I add a tempo marker and adjust the next tempo and move on. After the song is finished, the drummer and guitarist play through the song and we make any changes based on the general feeling of the players. After everyone is satisfied with the tempos, I have the guitarist record a rhythm guitar track to the click as a guide. Finally, I mix down a WAV or MP3 file for the band to

practice to. If the drummer plays to this pre-recorded click track at band practice, after a short period of time you'll see how the sound of your band changes for the better.

4. Budget Considerations

Lets talk about money. Typically musicians do not have a lot of money. Their time is mostly spent honing their art and not in ways that usually make them financially comfortable. This being said, its also common that musicians find enough money to afford expensive instruments and even other expensive items like cars, but when it comes to recording their albums, they cut all kinds of corners. This makes no sense to me.

Perhaps I'm biased as an engineer, but I'm also a musician, and to me, my album embodies my personal creative force and is my sacred art. It's a piece of me and I want the best for its creation. I think many musicians would agree with this.

If what I said above holds true for you also, wouldn't you want to take every measure to ensure that your album comes out as good as possible? Does it make sense to cut essential days off the band's studio time to save a few hundred dollars per band member? That money could make the difference between an album that is totally satisfying and one that annoys you for life.

This being said, there are ways to save money that are prudent, and there are limits to what money can do for you, but within this context, its important for bands to really plan and do what they can to gather the funds necessary to record a truly professional album that is competitive in their market and is deeply satisfying to the musicians who have created it.

It's also worth mentioning that there is a time and a place for 'cheap' recordings. New bands need to create 3 or 4 song demos to get the ball rolling and it doesn't need to be ultra expensive to record a good sounding demo that will do the job and not sound embarrassing. Or sometimes a band just wants to put some new material out that is only going to go out online for some specific purpose. There are reasons like these why a band might not want to break the bank to record something, and if recording more cheaply wont hurt their reputation, its totally ok to just get the job done. Its also been pretty accepted that a band's first album need not be at the pinnacle of recording quality, but after the band gets more notoriety, and more albums are produced, I think that's its important for the recordings to progress in quality just as the band's music and reputation progresses.

So, how much money do you need to record a great album? There is no rule but one example that I think might be typical is below. If the band is prepared and they can locate an average priced studio with an above average engineer who specializes in their style, try the following:

For a 10 song album that is recorded completely at a studio that charges 300 dollars per day, where you spend 2 weeks tracking, 10 days- mixing, and then 500 dollars on

mastering, you would spend 7700 dollars. If you can afford a bit more time, you can relax more, get better performances and add more creative elements. If you need to spend less, then you must be extremely prepared and so must the engineer. It is sometimes possible to get good quality for less, but there is no time to waste when all of the tracking and mixing has to be done in two to three weeks.

Keep in mind that before the mid 1990's, recording an album like we are able to record today with our current computer technology would have cost many tens or even hundreds of thousands of dollars, and often did.

A good reason to own a small recording setup is so that the band can take the time to pre-produce all kinds of creative additions to the album or even fully record some of those things to be added in the mixing or mastering stage. Your album could be a great sounding but bare bones 10 song release, or it could be an elegantly produced, 14 song comprehensive concept album on the same budget if you use your home studio to add extra elements to your production.

Lastly, in many cases, it's not possible to find a competent engineer who knows how to record and mix your style in your local area. Traveling adds even more expense, so in this case I would recommend that you record locally with an engineer who can track your performances cleanly and send your files off to a specialized engineer who can mix your songs at his location.

5. Selecting a studio and engineer

One common misconception in this business is that a big beautiful recording studio that is full of super expensive and vintage equipment will turn out a better sounding album than one that is smaller and only modestly equipped.

It's tragic to hear albums that were produced at million dollar studios that sound mediocre at best and it's extremely surprising to hear phenomenal sounding albums that were produced at so called "project studios" which suffer in comparison with regards to equipment and location.

The key elements that lead to a great sounding album are the following: The band's musical capabilities, the producer/engineer you select, the time you have to spend, and the intelligent and creative selection of equipment – in that order. So lets go over these.

The first element is the band's capabilities. This means how skilled the musicians are in their respective roles, how fully they have visualized their own sound within their band, and how practiced and generally prepared they are to record. Think about these three aspects carefully and do what you can to prepare. Take all the time you can afford to take.

The engineer you select is the next most important decision you can make when recording your album. Engineers are sometimes also producers but producers are not always engineers. So what's the difference?

An engineer is a studio technician. An engineer is trained to use all of the recording equipment in the studio competently. A producer, on the other hand, is an artist who is able to visualize a band's musical vision in a comprehensive way and to help the musicians and the engineer(s) make certain decisions in regards to performances, song arrangements and with sound and gear considerations.

Producers have a point of view that is similar to that of an engineer because they're aware of the technicalities of how an album is created, but they're often also musicians themselves or have an artistic mind and they help steer the band to create something that has their own personal stamp on it.

Traditionally, in the music business, producers were called in by the band or record label, and were less involved in the technical aspect of recording than the engineers, and they charged a fee or asked for "points" which means a percentage of album sale profits. This is still common today in the music business in general, but in metal music, most of the good sounding albums are recorded and sometimes produced by engineers who perform both roles and often do not charge a producers fee. When I refer to engineers in the context of recording metal music, I usually mean recording engineers who also act as producers at least to some degree.

The best way to select an engineer is to first know what you want your own band to sound like, to make sure that you have the actual capacity to sound that way, and then to select an engineer who is known for recording bands that have a sound similar to what you are going for. If you can't find that kind of engineer in your area and don't want to travel to where they work or bring them to your area, then you'll have to record with a local engineer who has some experience recording metal music, or at least heavy rock music, and then send the recorded tracks to a specialist mix engineer. If you do this, you'll need to talk with your mix engineer first and make sure that your local engineer does all of the mandatory things that the mix engineer requires so that the tracks are up to his standards. If this is not done, you could severely limit your mix engineer's ability to create the best sounding final product. The more you communicate with your engineer in advance the better.

We discussed the subject of time spent in the studio in chapter 4, but again you need enough time to get all of your tones right, to get all of your performances the best they can be and to give the engineer the time he needs without rushing him. If you need more time, and if the band or one of the band members has a small home studio setup, then you can track some of your performances yourself and this will be discussed in the next chapter.

The final element I listed was the intelligent and creative selection of quality gear. This means the selection of the band's musical equipment by the band members and also the selection of the right recording equipment by the recording engineer.

Musicians often have a hard time finding a tone that pleases them or a tone that's of a standard that a good engineer will agree with. We discussed this above. If the musicians are happy with the tones they have and are using truly professional equipment and not using run down old gear, then it shouldn't be a problem for the engineer to get a good sound to tape if he's skilled in his trade and understands your style.

If any of the musicians are not happy with their tone at band practice or don't own the best equipment, then its important to discuss this with the engineer and to prepare to rent or borrow equipment that will get a great sound. Tell your engineer everything about the gear you plan to use in advance.

In regards to the selection of the proper recording equipment by the engineer, a good and experienced engineer knows what matters and what doesn't. Even if he's running a small studio without a whole lot of gear, he should know what the most important parts of a studio are and include them in his set-up (rooms, mics and monitors). He should have good monitors, enough high-end microphones, some high-end preamps and compressors and know how to use them all well. He needs to have a great ear above all and the ability to visualize the tones he wants to create and to derive those sounds from the equipment that's on hand. There are some equipment and room acoustics considerations that are mandatory, but outside of this, its all about natural talent and experience. A talented and experienced engineer can actually record a great album with 10 thousand dollars worth of equipment in a house, but a lesser engineer will not be able to record a great album at even a multi million dollar studio.

6. Recording at home.

Now, for some bands that have one or more members who are studying recording and have built a recording setup at home or at the band practice studio, they can save some money and give themselves more time to get their performances right. But this comes with some serious reservations that I will discuss. They can also compose music, design click tracks, and record band practices, and these are major reasons for a band to have a small recording setup.

First, if a band or particular musician is preparing to record an album in the near future but has not yet bought any recording equipment or studied this subject, and wants to use this equipment during the album production, I suggest that they re-consider this carefully. It takes a lot of study time and trial and error to get proficient enough to be able to record quality tracks at home.

On the other hand, if the musician/engineer at the home sessions is comfortable with computer equipment, and if they seek out assistance and self educate themselves, then it

can be possible to get things right – with some patience. If the band has musicians who are computer literate, generally technically savvy and have some knack for these kinds of things, with about 1500 dollars worth of equipment, they can record guitar and bass at home (to be reamped in mixing) and various other performances can be recorded at home.

By the way, try to find a musician friend who is already recording at home and is willing to answer questions for you and then you can buy the software he or she uses and learn from them. There are many free resources now, like instructional videos on Youtube, books, blogs, etc but it's very helpful to have a buddy.

The reason why I don't recommend that drums or vocals be recorded at home by the band is because of the amount of experience and specialized gear that these things require.

Recording drums requires almost all of the resources that a recording studio has. If it was not for the recording of acoustic drums, there would be virtually no need for a studio to have more than just a few mics, preamps and other toys plus some recording hardware and software. It's the drums that makes building a recording studio so much more expensive and requires so much more equipment and room.

If you're interested in buying some gear to record tracks at home, here are some gear suggestions. I'm estimating that the band will predominantly record guitar, bass and various additional effects at home and then re-amp the tracks later in the studio while mixing (more on re-amping in a bit). I'm also pre-supposing that someone has a recent and fairly fast PC or Mac computer to use.

1. USB audio interface such as M Audio, Focusrite, Avid, etc. \$200 - 400
2. Quality active direct box. I recommend the Countryman Type 85. \$200 You'll use this to get a great bass tone and to route your guitar when recording for re-amping later.
3. Recording software. Reaper = free or donation. Cubase Artist, Pro Tools LE or similar software. \$200.
4. A pair of active studio monitors. When it comes to professional mixing, your monitors are perhaps the most important gear in the studio and I would never recommend that serious engineers use cheap monitors. But for a small home studio set up where you are just tracking performances to be re-amped later and doing pre-production stuff, you can buy whatever works within your budget. Grab a pair of active monitors (active means the amp is built in), with 6 to 8 inch woofers of whatever brand you like. M-Audio, KRK, Event, Alesis, Behrenger all sell speakers that will do the job. Mackie makes better ones that are a bit more. Read some reviews on Amazon and then even look for them used. You might spend perhaps \$400 on a pair of something workable – or buy used and get even better speakers.
5. Quality cables and interconnects. Buy quality products. They don't have to be super high end audiophile quality, but not the cheapest stuff.
6. If you plan to record anything acoustic or record pre-production vocals (professional vocal tracks would require a high end compressor too), you can get a large diaphragm

condenser mic and use it on pretty much anything. Try the Audio Technica 4033 or 4040. \$300

7. If you think you need to record anything in stereo, like acoustic guitars or if you want to record some drums at band practice and need cymbal mics try the Oktava MC -012 or similar small diaphragm condensers. Pair: \$200

8. You'll need mic stands, pop filters and various adapters and interconnects. You might need to buy a small 4 or 8 channel mixer for routing some things.

See Appendix A for a full description of re-amping and how to wire up your studio to record your guitar and bass to be re-amped later.

At the risk of sounding too patriarchal, I'd like to point out that the proliferation of cheap but quality recording equipment has been a real boon for musicians and opened up many new avenues for them, but at the same time, this phenomenon has resulted in the lowering of the average quality of many albums. The skills of a recording engineer do not come easy and take many years to achieve. I might guess that most engineers really start to shine after about a decade of dedication to the art and science of recording.

Musicians will do well learning some basic recording skills so that they are more in control of their own musical destiny, but not trying to do the job of dedicated professionals who will always be more skilled than the average musician. This is not being said because as an engineer, my business is being encroached on by musicians, it's being said because I am interested in keeping the quality of musical recordings as high as possible. It's better for the bands, better for the industry and better for the music itself, in my view.

7. Conclusion

To me, the recording of a band's music is really a sacred process. In essence, there's no difference between a band recording an album and a painter realizing his or her vision on canvas, or a sculptor realizing theirs in stone. It's a process that starts with human imagination, is built through blood, sweat and tears and is eventually recorded in a medium that displays the artist's vision for the world to enjoy forever.

As it is with the creation of any art, every single decision leaves its imprint on the final artistic display. The quality of the materials chosen, the techniques the artist uses, the care and attention to detail that is included in any great work are all aspects of the recording of an album.

Take your time, analyze every detail, and apply care. Consciously choose the people you work with because if their vision and abilities are not matched to yours, then your goals may never be realized. If you keep your standards high you will never regret it and you will forever look fondly at your sacred creation.

Appendix A

Re-amping is the process of recording a direct guitar or bass signal to tape (or computer) and then feeding that recorded signal back out to an amplifier so the final amplified tone can be captured after the actual performances have been recorded.

Why would you want to record your performances now, but decide on the final amplified tone later? There are several reasons. The first reason is that when the musicians and engineers are ready to record, they're not in the right frame of mind to withstand hours or even days of fine tuning of amps and they have a tendency to move forward before a perfect tone has been achieved. The second reason is that its difficult to judge what the best amp tone should be before the rest of the instruments are recorded to give context. The third main reason is that when you use the re-amp method, you have the chance to re-record the guitar or bass tone as many times as you want to, with or without the musicians being present until the tone is absolutely perfect. There is also another reason for using the re-amp method in the context of recording metal albums, and that is that it enables musicians to do some tracking at home even if they don't have the expertise needed to get a great tone because the mixing engineer can capture a the tone in the mixing stage.

A Reamp is an actual piece of equipment that was invented by engineer John Cuniberti in 1994. See the Wiki entry <https://en.wikipedia.org/wiki/Re-amp> There are a number of slightly different makes and models on the market now. A re-amp box is kind of like a DI box in reverse. There are a number of different boxes on the market now, they all sound very slightly different, but do basically the same job.

Here is how to set yourself up to record guitar performances to be re-amped later.

You'll want to record your guitar's clean output direct into the recorder but also split the signal in two so you can also record some kind of decent amplified sound so you can hear the performances properly while tracking. You can use a modeling type of preamp like a Line 6 pod, or mic up a practice amp, or the best way is to mic up the same amp that you will likely use to re-amp the tone later, but just put one mic on one speaker and don't worry too much about getting the tone perfect – its just a guide tone track.

Plug your guitar into a quality active direct box like the Countryman Type 85 or similar. There are generally two outputs on a DI box, one is 1/4 inch output jack and the other is an XLR microphone style output.

Plug an instrument cable into the 1/4 inch output and run that into the amplifier that you will use to get your guide tone. Put a mic on that amp's cabinet (or run it direct if its was designed for running direct), then into a mic preamp and into one channel of the recorder/computer. Set levels to -3 max or to your preference.

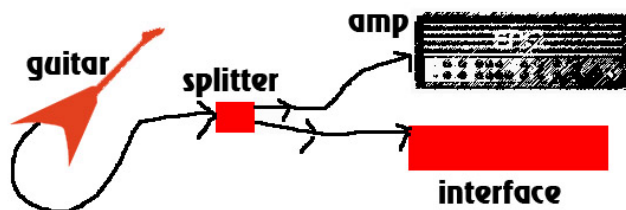
Next plug an XLR cable into the XLR output of the DI box and run that into a mic preamp and then into a second channel of the recorder/computer. Set levels.

Now when you play the guitar, you will see signal on two channels of the recorder. One will be the clean DI sound and the other will be the amplified sound from the amp you're using as a guide tone track.

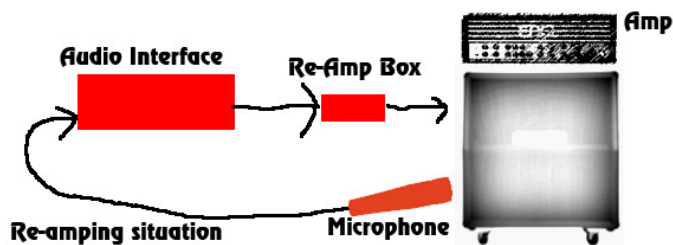
When you punch in all of your performances, punch in on both channels simultaneously. Once you are finished with all your tracking, you can send the tracks over to the mixing engineer for re-amping and he will then route the signals as follows:

The mixing engineer will take the guide tone tracks and use them to get the first mixes put together. Then when its time to start getting some real guitar tone into the mix, he'll route the clean DI tracks out of the recorder and into a re-amp box. He will send the signal from the re-amp box into the front of a great tube amplifier, put some mics on a guitar cabinet, and then record the signal coming from the mics into his recorder. Clean DI tracks will be going out, and amplified signals coming back into new channels. When the engineer presses play and record on the recorder, the new tone is captured. After the tone is re-amped, he can place it into the mix accordingly and either keep it, or make changes on the amp or with the mic positions, etc and do it again until he's satisfied. If we want to capture the sound of multiple amps, he can do this as many times as is needed until all the amps have been recorded.

Every engineer has their own way, but for me, I usually re-amplify guitar tracks with two amps, lets say a Peavey 5150 and Mesa Rectifier. I use the same guitar cabinet for both amps, and generally use the same mics and positions. I just swap amps and capture the tone again for the second amp. The final result, if using two mics on a cabinet, is 4 guitar tracks per performance (per side).



Recording situation



Re-amping situation

About the Author:



Colin Davis is the owner and operator of Shadowwork Recording and Imperial Mastering in the California Bay Area. He has been recording professionally since 1996 when he teamed up with band mate Juan Urteaga and built a small recording studio at the location of their band rehearsal space.

Since then he has built or assisted in the building of a number of recording studios and he completed his own Imperial Mastering room in 2002. He has focused extensively on the recording, mixing and mastering of metal and extreme metal styles.

Colin is also the founding member of the extreme metal band VILE, has played guitar since age 16 and played in bands since 1990. Colin strives to perfect the art and science of recording and also to communicate what he has learned to musicians and new engineers as a public service.

Comments or questions may be sent via the Imperial Mastering or Shadowwork Recording websites. Input regarding this guide by engineers is welcomed.

www.shadowworkrecording.com

www.imperialmastering.com