

Level: Neophyte

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This e-report answers the question...

“What's the basic equipment I need in my home studio to produce professional quality tracks?”

Buying equipment for your home studio can be a tedious and even overwhelming process, especially when you're just starting out. The world of music technology tends to get the best of even seasoned recording professionals. It feels at times almost impossible to keep up with the new toys, gadgets and software.

Music software and equipment manufacturers all want to peddle their gear to us home studio enthusiasts. Music production magazines stay in business by making you believe you always need more gear. The marketing propaganda can be stacked high enough to reach Mars!

So, you may turn to the people who already have their own home studios to look for answers. What do you find? Some good advice, many conflicting opinions and what looks like completely different studio setups.

You turn to the Web to research and your met with light-year-long forum posts where people recommend pretty much all the gear you saw in the music production magazines!



You can easily end up confused by the amount of conflicting information you receive. Is it really that complicated and hard just to start producing music at home?

Well, it's not quantum theory! You want to produce good music recordings though, right? As pro as you can go?

Well, then you must get it right! You can't just slap together any recording gear and expect quality results. Your choice of equipment, especially the critical components of your home recording studio, plays a vital role in the quality of sound you'll be able to achieve in your productions.

How this little e-report will help you...

You'll discover in this e-report the studio recording equipment you must have to make professional quality recordings. You'll see how the kit connects and find out what you must know about each piece of gear.

The setup you'll find described in the pages below is the bare-bones minimum you can get away with in terms of home studio gear. **You can record and produce good quality music when you combine the equipment described in the e-book with a good room and super-ninja music production skills.**

More experienced readers may already know everything contained in this report because this guide is for studio recording neophytes who are just starting out. It's all about getting the basics right in terms of your initial gear purchases.

This e-book won't go into room acoustics, or how to use your studio. I'll write more about that in the near future.

So, are you ready to see the most basic recording studio equipment you'll need to get recording and start your music production?

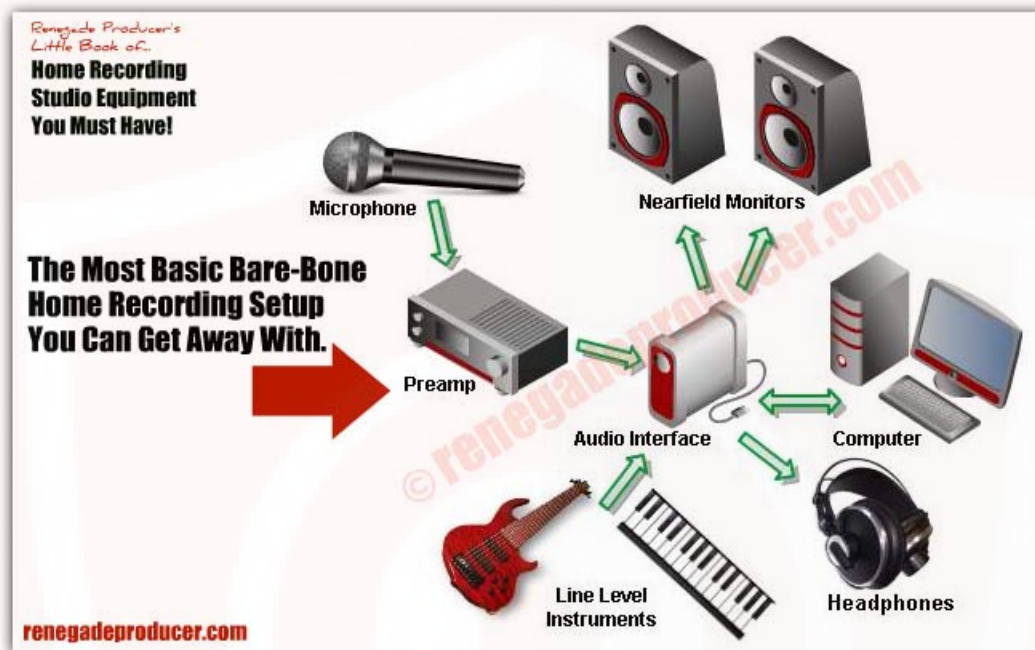
The Beatles may have needed only Love...

... and Nas may only need one mic.

YOU however need at least the following setup if you plan to have a proper home recording studio...



The Bare-Bone Rig...



You need to get the sound into your computer. This part of the signal chain is as follows...

Microphone > Pre-Amp > Audio Interface > Computer > Recording Software

... Or...

Keyboard > Audio Interface > Computer > Recording Software

You need to record, edit, mix, process and play back the sound. This can all be done in your computer using DAW software and plug-ins, unless you want to use outboard hardware for processing.

You need to also be able to hear the sound you record and play back. This part of the signal chain is as follows...

Recording Software > Computer > Audio Interface > Monitors and Headphones

Now, each piece of gear in a bit more detail....

1. Microphones



What is it? A microphone, as you probably already know, is a device which converts sound into an electric signal which can be electronically amplified, processed and recorded.

How does it work? You'll find different types of microphones as you research what to buy. The 3 types of microphones you'll mostly find in home recording studios are...

Dynamic microphones: A diaphragm in the microphone responds to airwaves and translates the vibrations into an electrical signal by moving a small wire coil around inside a magnetic field.

Condenser microphones: The diaphragm of this type of mic acts as one plate in a capacitor. The variations in the position between the plates gets translated into electrical signal.

Ribbon microphones: This microphone works with magnetic induction similar to the dynamic mic although the diaphragm is a thin metal ribbon suspended itself in a magnetic field.

Check the Renegade Resources at the end to learn more about microphones.

Why do I need it in my home recording studio? You probably know the answer to this already: Without a microphone you can't capture any sound to input into your recording device. You'll need it for vocals, guitar amps, acoustic guitars, drums and any other instrument you plan to record which doesn't have a line out.

Where does it go in my home recording studio? You'll plug your mic into a standalone preamp, a mixing desk with built-in preamps or an audio interface with built-in preamps.

How do I connect it? Most studio microphones will use an XLR cable to connect to the input on your preamp, mixer or audio interface.

Which type should I get? The most used home studio recording microphones are either dynamic or condenser mics because these two types can record just about any instrument well.

The best advice anyone can give you is to get as good a microphone as you can afford because it's near impossible to make a bad microphone sound good. Some cheap microphones can really damage your ability to produce quality tracks.

So, be clear on what you will record, save up, do your research and choose the best quality mic you can afford. You'll want more microphones. Soon! ;-)

Remember: Every producer has an opinion on which studio gear is best, which another producer will argue against. This is definitely the case with microphones.

No producer can tell you what the best microphone is because none such thing exists. You're not looking for the best microphone, you're looking for the best one for the job you want to do. The way to really know whether a microphone is good is to plug it in, record through it and listen.

That said, some entry-level microphones are awful and should be avoided like swine flu during a pandemic. I've compiled a list of entry-level microphones I consider decent choices to start out with for you here...

<http://www.renegadeproducer.com/recording-microphones.html>

2. Boom Microphone Stands



What is it? A stand which you can position your microphone with while recording.

How does it work? A simple adjustable stand with clamp to hold the microphone.

Why do I need it in my home recording studio? Microphone placement is essential for getting a good sound and without a microphone stand it's hard to get our mic placement exactly right.

You'll use them for miking up drums, vocal, acoustic guitars, guitar amps or any other acoustic instrument or any other unearthly concoctions you decide to send through your amplifiers.

Which type should I get? A standard boom type stand, like the ones you see performers use on stage will do the job for most recording scenarios you'll encounter.

You want note that not all mic stands are created equal. Good quality mic stands will last while cheaper flimsy models will fall apart. You don't have to get the most expensive stands though a good name brand will usually do. I've listed some good ones in the resources section at the end for you.

How do I connect it? Microphones usually come with their own mounts or shock-mounts which screw into your standard mic stands. Voila!

3. Studio Headphones



What is it? Closed-back/Sealed professional studio headphones.

How does it work? Headphones convert electronic analogue signals into sound waves played through a pair of small speakers in cans which fit over your entire ear. You knew that already I imagine. ;-)

Why do I need it in my home recording studio? A good pair of studio quality cans allow the musicians you record to listen to other parts of the track while recording their own parts. These babies will also allow you to monitor what you are recording in the same room you or other musicians are playing in without the sound leaking into the tracks you're laying down.

Good quality studio headphones will also give you another point of reference when you mix your tracks down before mastering.

Which type should I get? You want a set of headphones which completely closes around your ears. The idea is that you don't want sound to leak from the artist's headphones and get picked up by your microphones. In the same way, you don't want external noises to enter the headphones when you monitor.

How do I connect it into my studio? You'll usually plug your headphones into your Audio Interface's or your Mic Preamp's headphone outputs.

You may want to get a headphone mixer if you're recording more than one artist at a time. This way they can all adjust their own mixes. In this case the headphones will run to the headphone mixer which in turn plugs into your Preamp or Audio Interface.

4. Pre-amps



What is it? An electronic amplifier which allows you to boost the level of the signal coming from your microphone or instrument pick-ups before it goes into your audio interface/sound card.

How does it work? A preamp increases the voltage of the electrical signal produced by your microphone, pick-up or turn-tables.

Why do I need it in my home recording studio? Some signal levels such as those produced by microphones and pick-ups are too low to record. A good preamp allows you to raise the gain without damaging the signal.

A good preamp can also add tonal qualities to your recorded sound which in many cases can give you pleasant results.

How do I connect it? You connect the output of your pre-amp with the Line input on your audio interface usually using a three-pin XLR cable.

The stand-alone preamp fits right in between your microphone, instrument pick-up or turntable and your audio interface.

You'll find channel strips and mixers which have built-in preamps.

Which type should I get? You'll find that a lot of the audio interfaces and mixers have pretty decent preamps built in so this may be a good way to start out. The problem with some of the lower-end entry-level gear is that the preamps may not be up to scratch. Your sound will suffer if the preamps are of an inferior quality.

Make sure the audio interface or mixer you get has decent preamps by researching online and asking for opinions of other producers or engineers you know.

A good standalone high-end pre-amp on the other hand will be a worthwhile investment in your studio as it can do wonders for your recordings. If you plan to make really good quality recordings then professional preamps will help you get a better sound, no doubt.

So, clarify your recording needs, look at your budget, research your options and choose the best preamps you can get your hands on!5

5. An Audio Interface/Pro Sound Card/In-Out Box



What is it? A magic box which acts as the gatekeeper and translator of signals between the analogue realm of microphones, monitors, stomp boxes and preamps and the digital realms inside your computer and recording software.

How does it work? Your sound card or audio interface takes analogue audio signals (microphone, preamp, instrument or turntable outputs), and converts them to digital audio signals (codes computers like and understand), which allows you to record your audio on your PC.

Computer sound cards or audio interfaces can also take recorded digital audio signals from your computer, convert it to analogue audio signals, and output the converted signal to your monitors (pro audio speakers), mixing desk, processors and so on.

The above two processes are called Analogue-to-Digital (A/D), or Digital-to-Analogue (D/A) conversion, and it depends on the quality of your Digital Audio Converters (on your sound card) and on your audio drivers (software which comes with computer sound cards).

Why do I need it in my home recording studio? Why not just use the sound card which comes with the PC? One word: Quality!

The sound card in your PC was not designed with musicians, sound engineers and music producers in mind. You need a sound card or audio interface with a bit more, shall we say, va-va-voom! Consumer sound cards will only damage your sacred audio signal by adding noise and distortion.

You need a sound card or audio interface which will keep your signal clean with minimal levels of coloration. You'll also need more inputs and outputs than the consumer options you find on a standard sound card.

How do I connect it? You connect your sound card to your computer either through PCI, PCIe, USB or Firewire for a desktop or Cardbus, USB, or Firewire when you use a laptop.

Which type should I get? You should look for an audio interface which...

... has enough amounts of ins and outs to suit your requirements.

For example, if you want to record 8 mics from drum set at once you need at least 8 audio inputs on your interface. You can get away with 2 inputs if you plan to record only voice and guitar or single instruments.

... can record at the sample rate and bit depth you need for quality recording.

You'll bounce all your CDs down to 16-bit/44kHz when you're done. You want to preferably work at 24-bit/96kHz or even 32-bit if you can.

... is compatible with the computer you wish to use.

One interface will work for Mac while the next will be PC only. Others will work on either Mac or PC. Read the specs before you buy!

... has drivers which are supported by the recording software you plan to use (Cubase, Logic, Sonar).

Yes, some audio interface drivers will work only with specific recording software or computer operating systems. Make sure your drivers will work before you buy.

... is the best you can afford with your budget.

This is not a link in your audio signal chain you should compromise by buying inferior products.

You may find a quality interface just outside your budget. Beg, borrow, scheme to get the extra dough! It will be worth your while in the longer term.

I suggest you read this page on RenegadeProducer.com...

<http://www.renegadeproducer.com/computer-sound-cards.html>

... where you'll discover the main terminology involved with audio interfaces, the requirements you need to look for and also a few good recommendations for decent audio interfaces.

You'll also find some great reference comparison charts of different audio interfaces for your research included in the Renegade Resources at the end of this report.

6. Studio Monitors



What is it? Speakers designed specifically for use in studio music production.

How does it work? Monitors translate and amplify digital or analogue signals to audio you can hear. It works pretty much like a microphone, in reverse. ;-)

Why do I need it in my home recording studio? Your PC (multimedia) or Hi-Fi speakers were designed to make the audio sound good (which is bad as you'll see below), and they weren't designed to handle the torture you'll inflict on them when you create your own music.

A quality pair of near-field monitors will represent audio as it is (not "better" than it is), and will be able to handle every sonic frequency you blast through without distorting the quality of the audio. Well, in theory at least. ;-)

How do I connect it? You'll run your monitor outputs from your audio interface into your monitors.

Which cables you use to connect will depend on the outputs on your audio interface and the inputs available on your monitors. In some setups your audio interface monitor outputs will be TS and your monitor inputs will be RCA, in others you may need an XLR-XLR cable to do the job.

Which type should I get? Your goal is to hunt down studio monitors which produce a real accurate picture of your recorded audio mix and which suit your ears and budget. The only way to do this is to research, make a shortlist of candidates, find a shop where you can demo these and listen to the different monitors playing back a CD or three you know well.

You're looking for a monitor with...

... a good tight bass response, not muddy, blurred, or distorted.

... clarity across mid and high frequency ranges with no buzzing or specific frequencies jumping out at you.

... a good stereo image, wide and deep.

... steady performance and stability at loud volumes, no rattling or noise.

... good presence and imaging at lower volumes.

Close your eyes and listen. The more monitors you listen to the same music on the more you'll pick up the nuances between the monitors.

In the end you you have to pull the trigger and go with a set of monitors. You'll choose based on a mix of what your common sense, ears, heart and bank account tells you.

You may find the <\$1000 options listed on this page a good place to start your research...

<http://www.renegadeproducer.com/recommended-studio-monitors.html>

7. A Computer



What is it? A magic box which allows you to record, edit and play back audio and MIDI and more.

How does it work? You'll have to ask the propeller-heads to explain this one for you. Luckily you don't have to know exactly how a computer works to use one. That's me. ;-)

Why do I need it in my home recording studio? Computers are the central hubs of most home recording studios. You can work with only a multi-track standalone recorder should you want to though you'll be missing out on some of the greatest advances in music production technology without a good computer.

Where does it go in my home recording studio? In the center, and out of the way! In other words, your PC or Mac will be connected to almost your entire setup via your audio interface. At the same time you don't want the physical console in the room you record or mix down in because of the cooling-fan noise.

Pro studios will mostly have a separate machine room. Some cats use special isolation boxes to mount their computers in. Both these solutions are quite expensive. Try get or build the most quiet machine you can and then just place it as far away from where you record or mix as you possibly can.

How do I connect it? Your computer connects to your sound card/audio interface via PCI, PCIe, USB, Firewire or Cardbus.

Which type should I get? Once again, the best you can afford! Audio applications are resource-intensive which means you'll want the biggest CPU, fastest RAM and most disk space you can afford.

Low-spec and older machines will have glitches and ramp up the time it takes to process your audio. This interferes with your creative flow in the studio.

I have a suspicion most home studio cats would want to work on a top-spec Mac if they could afford it. I know I would! Mac is a favorite among professionals though a good PC will be able to do what you want it to do in the studio just as well as a Mac.

My advice therefore is that you get a new Mac if your budget allows or a good PC if you don't have so much money to spend on a Mac. That said, most modern machines will do the job well enough.

You realize you'll also need recording software. You can read about some good programs on this page...

<http://www.renegadeproducer.com/music-creation-software.html>

Final Thoughts...

Congratulations! You now have the foundation on which you can build your perfect home studio.

Remember: You can make your setup better in two ways when it comes to studio equipment...

1. Add to what you have...

You can add to the equipment in the bare-bones setup what you want and need to make your music. You may for example need a larger mic collection should you wish to mic up the drum set with more than just two overheads or should you wish to use multiple mics for different sounds.

You may want to add a MIDI controller if you're planning to use soft synths and samplers when making your music. You'll want to add more gear to your lab if what you want is to run a home studio business.

You may want to add some outboard effects and other magic boxes to your setup.

New gear, while opening new creative possibilities, doesn't always help you get closer to the Holy Grail of great mixes which translate well onto other systems.

2. Replace what you have...

You only have a low-end condenser microphone? Buy a better one when you find yourself with some money to spend and you want to improve the sound of your productions. The same goes for preamps, audio interfaces and monitors. You increase your chances of getting a good sound every time you replace a critical component in your signal chain with a better one.

Important: The gear is one part of getting a good sound. The room you record in and the way you use your gear also play vital roles as you can imagine. More on this in the near future.

I hope you've enjoyed this report and wish you all the best with your home studio gear buying adventures!

All the best,
Marius van Dyk
RenegadeProducer.com

P.S. Feel free to contact me should you have any comments, questions or feedback. You can reach me via my contact form on RenegadeProducer.com.

P.P.S. Please send anyone who may benefit from this report to get a copy via this link...

<http://www.renegadeproducer.com/gearguide>

Feel free to post the above link on your Blog, website or social network profiles.

P.P.P.S. You'll find some fine resources below for further recording studio equipment research and purchasing options...

Renegade Resources: Core Studio Equipment...

Good Mic Stand Manufacturers...

<http://www.onstagestands.com/>

<http://www.prolinestands.com/products/>

<http://www.k-m.de/>

Audio Interface Comparisons...

<http://www.silentway.com/interfaces>

http://www.tweakheadz.com/audio_interface_usb2_comparison_chart.htm

http://www.tweakheadz.com/audio_interface_pci_comparison_chart.htm

Mic, Preamps, Monitors and Other Gear Audio Comparisons...

<https://www.frontendaudio.com/Articles.asp?ID=169>

Great compiled information about older microphones...

<http://www.coutant.org/contents.html>

Want to make sense out of the Preamp Jungle? Check out this nifty page on Tweakheadz...

http://www.tweakheadz.com/microphone_preamps.htm

Learn the studio equipment terminology you need to know to research and buy your gear from these cool little guides on the Thomann retailer site...

Studio Monitor Terminology...

http://www.thomann.de/gb/onlineexpert_138_5.html

Sweet little guide about cables...

http://www.thomann.de/gb/onlineexpert_111_1.html

What the heck! Just check out the entire series...

<http://www.thomann.de/gb/onlineexpert.html>

Studio Monitor Reviews...

<http://mixguides.com/studiomonitors/Reviews/>

Quick Monitor and headphones buying guide...

<http://www.sweetwater.com/shop/studio/studio-monitors/buying-guide.php>

About the Author...

Marius van Dyk is a music-loving/guitar-strumming/sound-engineering/music-producing/webmastering/consulting many-trades type of guy. He blames it on the coffee.

He's told me he really wants you to tweet with him on Twitter...

<http://twitter.com/mariusvandyk>

He also wants you to dig the website he created for you...

<http://www.renegadeproducer.com/>



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