"Like it or not, this is the future!" To some, these were fighting words. The speaker was a representative from the DJ equipment manufacturer, Stanton, who stood sweating under the stage lights at a 2002 DMC battle in New York City as he tried to woo the palpably hostile crowd with his company’s new product. ¹ This was Final Scratch, a hardware/software system that allowed DJs to play digital sound files stored on their laptops using their turntables as controllers. The Stanton rep stood beside DJ B-Side, who had gamely been trying to explain to the crowd of several hundred on that hot summer night that with this new technology you could leave your vinyl at home and simply use two specially made records instead. Hecklers rained abuse on B-Side as he demonstrated the system; some started chanting, “We want vinyl! We want vinyl!” Never mind that Final Scratch did use vinyl; the mere presence of a computer plugged into the traditional analog system of two turntables and a mixer was offensive to some. “Many people who were there that night still call me ‘That Digital Nigga,’” B-Side recalls with amusement. ² After B-Side and the Stanton rep retreated from the stage, the battle resumed. A crowd-pleasing showcase by special guest A-Trak capped the night; well into the morning, Kuttin Kandi, MC for the competition, came out to announce that DJ Precision was the winner, with Boogie Blind the runner-up. None of them had used a computer.

Although many DJs resisted digital technology at the time, they were also curious about it. As B-Side pointed out about that night, “The crowd seemed mad and pissed publicly, but half of them came up to me to learn more about what exactly was going on.” This combination of resistance and curiosity reveals just how much was at stake: it wasn’t just that the tools of the DJ’s trade were changing, but their art and their way of life were being challenged as well. In the end, the Stanton representative was right: this technology was the future. Put simply, the introduction of digital technology has been the single biggest development in the history of the hip-hop DJ.
Digital technology has affected the way DJs find, make, and disseminate their music. Moreover, it has influenced not just the how of DJing, but also the who. These new tools have opened DJing to a broader and more diverse population by simplifying certain aspects of DJ technique and reducing the expense of being a DJ. But technology was not the only factor in the changing demographics of the DJ scene. The same period saw the emergence of the DJ academy, an institution that has changed the way the art is taught, and to whom it is taught. Tied up with digital technology and the DJ academy are other developments, from the growing presence of women in this male-dominated world and the rise of the celebrity disc jockey, to the success of DJ-related games and software applications. All are part of a broader phenomenon that characterized the first decade of the new millennium: a lowering of barriers that gave rise to the notion that anyone can be a DJ.

DIGITAL TECHNOLOGY COMES TO THE DJ: THE CD TURNTABLE

Here's a demonstration that never fails to amaze first-time observers. I put a compact disc in a specially made CD player and press "Play." Then I put my hand on what's called the jog wheel, a simulated record platter about the size of 45 rpm disc. I push it back and forth and... out comes the sound of scratching! "But you weren't touching the CD!" onlookers gasp; "How does that work?" they demand. The fact that I can mix and scratch a CD without even touching it seems close to magic. As we'll see, this magical disconnect—digital disconnect may be a better way of saying it—between the music and the DJ's hands was for some artists a great selling point, but a fatal flaw for others.

Digital technology had been in development for much of the twentieth century, but it wasn't until the late 1970s and early 1980s that it entered the market. Although digitally recorded vinyl records were publicly available in 1979, the real impact of digital recordings came in 1982 with a wholly new format, the compact disc. CDs held great appeal: the sound seemed clearer than analog recordings (though some felt and still feel that the sound is "colder"), and they were smaller and often sturdier than records. But for the rest of the 1980s and all of the 1990s, none of this mattered much to hip-hop DJs. CD players were literally and figuratively black boxes, metal monoliths whose inner workings were inaccessible to users. At that time, DJs couldn't mix or scratch with CDs like they could with vinyl records; the machines were simply incompatible with the art of performative DJing. For all the hoopla that accompanied the CD, this technology was not only a step backward for DJs but represented a threat, unceremoniously pushing turntables into near obsolescence.
But starting in 2001, CD technology leapt ahead; or perhaps it's better to say that it finally caught up with DJs. That year, electronics companies began to release players that imitated some of the features of the turntable crucial to performative DJing, including, yes, scratching. First to the market was American Audio's Pro Scratch 1 tabletop CD player, released in January 2001. In July, Pioneer introduced its CDJ-1000, which soon came to dominate the small but growing field; many refer to all CD turntables as CDJs, even though the name refers only to Pioneer products (Figure 8.1). Denon, Technics, and others soon followed with their own models.

Although the various models have slightly different dimensions and features, they generally function in the same ways. They are tabletop units with front-loading CD slots (or trays) and a jog wheel on top; a pitch adjust slider and an array of buttons fill out the interface. Once the CD is inserted into the machine, the DJ does not touch it, but controls its sound through the jog wheel and the various buttons. When the player is in "scratch mode" or "vinyl mode" (the name varies by manufacturer) the DJ can hold the jog wheel down to stop the music or push it forward or back to simulate scratching. I say simulate because the CD, safely ensconced in the unit, keeps spinning in its normal fashion even though the DJ may be pushing the jog wheel back and forth.

Figure 8.1 The Pioneer CDJ 1000, first released in 2001. Model pictured is the CDJ 1000 MK3. (Image courtesy of Pioneer Electronics [USA] Inc., © 2011.)
Here is where the digital nature of the CD player comes into play. Handling the jog wheel essentially gives instructions to the machine to manipulate the data—long strings of the digits 0 and 1—representing the sounds contained on the CD. The manipulability of digital sound is the basis for these players’ most valuable features. Most notably, cueing and looping are much simpler than on traditional turntables. A DJ can set multiple cue points so that a single tap of a button starts the music at exactly the right spot every time—no hunting for the right groove and gingerly setting the needle down, and no need to deface records with stickers and markers to indicate a particular spot on the vinyl. Looping is also a snap. Just press a button to indicate the beginning and end of a loop, and any segment of a track can be repeated as seamlessly as if Grandmaster Flash were on the wheels of steel. Many other effects—flanging, panning, and echoing, for example—are also possible on these machines. Then there’s the convenience factor. CDs hold more music than LPs and are easier to carry, and because a laser rather than a needle is used to play them, record wear isn’t a problem. Moreover, with CD burners available on personal computers and laptops, it’s a simple matter to make custom discs—it’s like being able to press battle records at home.

But these new CD players have their drawbacks, too. Many DJs, particularly hip-hop DJs who perform a lot of complex scratching and mixing, reject the machines. (Electronic dance music DJs, on the other hand, have more readily embraced CD turntables.) Most objectionable is the jog wheel. Instead of the usual twelve-inch record-platter, jog wheels are typically between about four and eight inches in diameter, in other words between the size of a small CD and a large 45 rpm record. (Some later models introduced twelve-inch wheels, however.) The smaller size gives DJs less room to move their hands, literally cramping their style. And even on the most robust machines, the jog wheels are light and insubstantial compared to the heavy, solid metal platters of sturdy turntables. Most crucially, jog wheels just don’t have the immediacy and tactility of vinyl. As Maseo, long time DJ and member of the group De La Soul, told me, “I like the feeling of that wax. Licking my fingers so I can get that grip on the record, spin it back and cut it up.” “Vinyl is the essence of DJing,” he explains; its absence is the CD turntable’s “main flaw.”

In the earliest of the CD players, latency was also a problem; that is, there was a noticeable lapse in time between moving the jog wheel and hearing the sound, and even the smallest lag can be distracting. Simply put, the feel of these machines is markedly different from that of traditional turntables. Instrumentalists are finely attuned to the size, weight, and texture of their instruments, and even slight changes to these physical properties can have a huge impact. Imagine playing basketball with a volleyball and you get the idea: everything would seem off. For many hip-hop DJs, the physical differences
between CD players and the turntables they grew up playing overshadow any of the advantages the digital machines offer.

There are ideological objections to CD players as well. The absence of vinyl is a serious problem for many hip-hop DJs, but not just because they miss its feel. Vinyl is a precious substance in hip-hop. It is authentic, it is elemental, it is fundamental. Vinyl was present at and largely responsible for the birth of hip-hop, and is intimately tied not only to DJing, but to MCing and breaking, for it was the DJ spinning vinyl who made it possible for the b-boys and b-girls to dance and the MCs to rap. There is more than just music inscribed in those black discs; vinyl carries with it the whole history, the DNA, of hip-hop.

Moreover, some DJs oppose these machines precisely because they make certain aspects of turntablism so much easier. There is an understandable pride DJs take in being able to loop a break seamlessly or drop the needle quickly and smoothly on a particular groove at will, skills mooted by the CD player's laser-guided accuracy. Some CD players not only make cueing and looping a snap, but can simplify scratching as well by automatically muting the sound of backspinning. This effectively removes the need to use the crossfader on many scratches. On a turntable, even a basic scratch like a stab—a short, repeated forward scratch with the sound of the backspin cut off—demands precise coordination between the record hand and the fader hand to execute cleanly. Not so with these CD players, which allow perfect one-handed stabs every time. For some DJs, eliminating the hard work required to hone their craft cheapens their art. And if a CD player does that much work for the performer, is it an instrument or simply a playback device? When GrandWizzard Theodore derisively remarked that these CD turntables “play themselves,” he may have been exaggerating, but his concern was sincere. Speaking for many hip-hop DJs, he categorically stated that using CD turntables “is not real turntablism.”

In 2005, this anxiety about digital turntablism bubbled to the surface in an online discussion of whether the DMC should allow CD players in its competitions. That January, a DMC representative asked readers of the website djpages.com what they thought of the possibility of changing the rules for the summer 2005 battle season. Many strongly opposed the idea; including a DJ called Furious:

This cannot be allowed to happen. The DMC championships are the cornerstone of turntablism. It has a historical significance and represents everything good about turntables. It seems these days everyone wants to do things the easy way. The thing I like about turntablism is that it requires genuine skill. Allowing CD DJs to compete with real turntablists is a betrayal.
Some, however, argued that turntablism transcends vinyl, and anything that allows DJs to better realize their musical ideas and to take the art “to the next level” should be embraced. Consider the sentiments of Mixdoctor, a seasoned DJ and battle judge, who responded to Furiate and others:

The “carrier” does not matter, whether CD or vinyl, it is the skill involved and how innovative the turntablist performance is that is important. I therefore think the inclusion of the CD players can only improve the competition and will finally push forward an art form that has stagnated.

The objections raised above seem to be made by the dinosaurs who want to clutch on to the vinyl disc like it is sacred. It isn’t! It is becoming outdated and it is time to move on.10

In the end DMC decided not to introduce CD turntables into its 2005 competitions, and is unlikely to try again. DMC founder and director Tony Prince diplomatically explained the decision to me in an e-mail message: “We felt the timing was too controversial to permit digital playback.” But he was frustrated by the DJs’ resistance, which he felt was shortsighted. “Whether digital playback has a role in turntablism,” he argued, depends on whether “the DJs recognise [that] . . . they can express their artistry and creativity digitally.”11 Digital playback did come to have a significant role in turntablism, and battles in particular, but it was not, as we’ll see, in the form of CD turntables.

DIGITAL VINYL

There is a form of digital DJing that turntablists have turned to in great numbers, a technology that many—even those who wouldn’t go near a CD turntable—rave about unashamedly. “Thank God [for it]” Steve Dee testifies. “It has saved my life,” gushes Cash Money. “This breaks down the barriers of DJing, and it opens so many doors,” say Faust and Shortee. “The best of all worlds,” claims DJ Maseo.12 Even the Master of Records—analog records—Afrika Bambaataa, declares, “I love it.”13 These veteran vinyl-loving DJs are all talking about what are known as digital vinyl emulation systems (usually abbreviated DVS).

It wasn’t love at first sight, however. DJ B-Side was using a DVS at the battle I described at the opening of the chapter, and was certainly not received well. Some DJs still object to it, and almost all agree that it will not replace hard work and skill. Some veterans criticize the technology for making DJing too easy, for allowing younger DJs to get away without paying their dues. “I loved it when you couldn’t mix music unless you had records and turntables. And that’s when it was dope,” says DJ P, who got his start before digital vinyl hit the scene.
"Those days are over. It's all digital now." Nevertheless, countless DJs who got their start in the vinyl age are using systems by Serato, Torq, Traktor, and others. Why is it that two digital forms of DJing, one that uses a CD player and one that uses a laptop computer, are treated so differently by hip-hop DJs? The answer is simple: vinyl. In short, the DVS allows DJs to keep what they love about vinyl—its feel, look, and authenticity—and avoid what they don't love about it—its weight, cost, and inconvenience.

To understand how digital vinyl systems work, I'll use the popular Serato Scratch Live system as an example, but most of what I say here can be generalized to other products as well. Serato consists of two vinyl records, the proprietary Serato software (to be downloaded to a laptop), a small black metal box with several outputs, and a tangle of red and white RCA cables. At first glance the Serato records seem like any other, but take a closer look. All the bands are exactly the same width, and there are none of the variations in groove density DJs are used to seeing. When played on a turntable not connected to a Serato-enabled laptop, this type of record simply emits a long, high-pitched sine wave known as a control signal. But when these records are played on turntables that are wired to a laptop through that black metal box (more on that in a moment) the long beeeep disappears. It's replaced by a sound file on the computer, and can now be controlled by manipulating the special records. Scratch a snare hit, loop a bar, juggle a phrase, or needle drop, and you hear just what you would expect. It really does seem like magic.

To make this magic, the control record must convey three basic bits of information to the software: record speed, record direction (backward or forward), and the position of the needle on the record. The control signal is used to convey speed and direction. As anyone who has played around with a turntable knows, when a record slows down, the pitch falls, and when the record speeds up, the pitch rises. The same is true with any DVS record. When the pitch of the control tone increases or decreases, the Serato software interprets this change in frequency as a change in speed, and the speed of the sound file being played changes correspondingly. The control tone is also used to gauge the direction in which the record is spinning. Actually, there are two control tones pressed into each disc, one for the left channel and one for the right, though they are exactly the same frequency, which is why it sounds as if one tone is playing. But the two tones are not sounding at exactly the same time; or more precisely, they are out of phase with each other. The software detects this, and recognizes that if, say, the tone in the right channel is ahead of the left channel tone, then the record is moving forward; if the opposite is true, it's moving backward.

So the software knows the velocity and direction of the record, but how can it tell where exactly the needle is on the record? Here is where the different DVS
products differ. Serato tackles this problem by embedding noise into its control records. The noise, which can’t be heard above the music, is constantly changing, so at no point is the shape of the waveform exactly like it is before or after it. The Serato software recognizes these changes and uses them to indicate very precisely where on the record the needle is tracking. Other digital vinyl systems, Torq and Ms. Pinky, for example, use a different method called time coding. These records have what are called time stamps, distinct binary numbers encoded into the vinyl. These time stamps correspond to different positions along the record and are mapped onto the sound file playing on the laptop. Whether the records use noise or time stamps, they all recognize needle position. This means that a DJ can needle drop and skip among different parts of a track, just as if it were a typical record.

For control vinyl to do more than simply beep, it has to communicate with the laptop. This is where that black metal box comes in; it’s an analog-to-digital converter, or ADC (see Figure 8.2). (Some mixers, like the Rane TTM-57, incorporate an ADC and connect directly to a laptop.) The ADC sends digitized information on changes in the sound of the control record to the software; the software translates the data into corresponding changes in the position, speed, and direction of a digital audio file. The data are then routed into the mixer where they can be manipulated like any analog audio signal. As crucial as the box is, DJs simply plug it in and forget about it; they don’t handle it like the control records or monitor it like the software displayed on their laptop.

Figure 8.2 The Serato interface box, an analog to digital converter (ADC) that connects the mixer to the turntables. (Photograph courtesy of Serato Audio Research.)
The software is the final piece to understand.19 (See Figure 8.3 for a screenshot of a Serato session.) The bottom half of the screen simply displays track information (artist names, song titles, etc.); the top half is where the action is. The two white circles—"virtual decks," they're called—represent the songs playing on turntable one and two, and indicate beats per minute, the length of the song, and the current position in the song. The black line sweeps around the circle's face, a digital version of the clock system that Grandmaster Flash developed in the 1970s.

Above the white circles are buttons for the different playback modes: absolute (ABS), relative (REL), and internal (INT). Absolute treats the record as if it were normal vinyl, mapping the start of the song to the beginning of the record. Pick up the tone arm and set it down an inch further into the record and it will play the corresponding part of the song. As the Serato manual explains, "ABS mode faithfully reproduces the movement of vinyl control records, including stops, starts, scratching, needle dropping, rubbing and other turntablism techniques."20 The manual doesn't point out that needle skips are also faithfully reproduced. To avoid skips, use relative mode, which registers the forward or backward movement of the record, but not needle position. If the needle jumps a groove or if the DJ picks up the tone arm and sets it down further into the

![Figure 8.3 Screenshot of Serato Scratch Live software, version 2.1. (Image courtesy of Serato Audio Research.)](image-url)
record, the song will continue playing at the same point. DJs will typically use relative mode in a club setting where advanced turntablism techniques aren't called for; it's especially handy when playing amid curious onlookers or drunken patrons who might bump into the turntables. Finally, internal mode lets the DJ manipulate songs just using the laptop—no turntables or vinyl are necessary. Internal mode is useful if the turntables malfunction during a club set or performance—the music can go on without the vinyl. DJs mostly use either ABS or REL—absolute mode if they want to simulate traditional vinyl as much as possible, and relative if they want to take advantage of the easy looping, cueing, and other effects possible with digital vinyl systems.

Most eye-catching about the Serato screen are the colorful waveform displays that sit in between the virtual decks. Experienced DJs look at a traditional record and can see variations in the grooves that indicate where in a track the break is. The waveform displays provide a digital analogue, so to speak, of the record grooves, but they offer much more information. The different colors (which do not show on Figure 8.3) indicate frequency—red for low, green for midrange, and blue for the higher end. Even kicks and snares are color-coded, making it easy to line up snares, juggle beats, and match tempos.

I haven't explained all the buttons and features, but we've seen enough to begin to understand how the widespread adoption of digital vinyl has affected the art of the DJ. Talk to a random handful of DJs who had been spinning before they adopted digital vinyl, and you'll get an armful of examples of how the technology has affected their work. Generally, however, there are three areas in which the effect of using a DVS is most pronounced: the transportation of records, the acquisition of records, and the manipulation of records.

The issue of transporting records seems to come up most quickly and often among DJs talking about digital vinyl. "Man, my back feels a whole lot better!" Shortcut says with a laugh when he explains how his life has changed since using digital vinyl. Craze concurs: "Because of all the years of carrying records I've developed lower back arthritis so I am very happy to use Traktor now." When DJs of a certain age—those old enough to have used vinyl for much of their careers—complain about their work-related ailments, they always talk about back pain. This has nothing to do with scratching or mixing records, and everything to do with carrying them. For decades before the advent of digital vinyl, hip-hop DJs spent endless hours hauling crates of records to and from their gigs, loading and unloading, lugging them upstairs and down. Even during their gigs they were constantly bending over to pull discs from their crates or put them back. "We've been carrying records for the last thirty years," GrandWizzard Theodore said of his generation. He doesn't wish that he had had digital vinyl instead of crates for all those years, but as he explains it, "We've paid our dues, so we deserve the right to use Serato."
Vinyl is a particular headache for DJs who travel by plane to gigs or battles. Extra fees, breakage, and theft are a constant reality. Self-described “vinyl fanatic” Afrika Bambaataa “wasn’t too keen” on the digital systems when he first encountered them. “But when you travel so much—and I used to come with crazy crates to do my shows, five, six, sometimes—you start to look at expenses.”24 Any jet-set DJ will have a horror story about retrieving crates from baggage claim only to find records missing. Here’s one from Shortcut: “I got to the destination where I was supposed to do the gig, and when I got to the baggage claim, half of my records were gone. And that was like three thousand bucks worth of records, you know what I’m sayin’?”25

For DJs carrying vinyl, air travel was always difficult. But in the wake of the terrorist attacks of September 11, 2001, flying became a true ordeal, with extra charges and closer scrutiny of baggage. For many DJs, this was the final straw. Rob Swift, for example, started using Serato in reaction to the headaches of traveling in a post-9/11 world.

I started using Serato Scratch Live in April 2005. I made the transition from using strictly vinyl at shows to Serato, primarily, to avoid the hassle of traveling with multiple crates of records. Just before switching over to Serato I went on a ten-day European tour. It was me, my girlfriend, four bags of luggage, three heavy-ass crates of records and absolutely no one to help us carry all of this! What made it worse was paying the excess baggage and overweight penalties airlines charge their customers. So not only was I dealing with the burden of lugging all of these records, I also was being forced to dip into show money in order to pay the excess baggage and overweight charges. By the fifth day of the tour I decided I would never go through that again.26

Here’s a provocative, but unanswerable, question: to what extent did the events of September 11, 2001; hasten the adoption of digital vinyl among hip-hop DJs? Not all DJs travel extensively by air, and those that did might’ve started using digital vinyl anyway, terrorist attacks or not. Still, digital vinyl didn’t become widely popular until certain well-respected DJs started to use it—Jazzy Jeff is often cited as an example. And if flying after 9/11 was the push that those high-flyers needed to leave their crates at home, perhaps the attacks really did have a large-scale impact on the art of the DJ. If so, this would be just another of the countless unforeseen effects of that horrific day.

Digital vinyl systems not only affect how DJs transport their music but how they acquire it in the first place. For many DJs, buying records is a way of life. They make the rounds of their favorite haunts (record stores, thrift shops, library sales) like clockwork and go digging for records in every city they visit.
But with digital vinyl, a DJ really doesn’t need more than two records—the control discs that come with the software. Practically speaking, this saves DJs time, energy, and money. For many DJs there’s little need to go out digging when it’s so simple to find tracks on the Internet, most of which are cheaper than the vinyl versions. The potential savings are tremendous, given that many DJs need multiple copies of records, whether for beat juggling or because they scratch particular discs so much that they quickly wear out. Look at some DJs’ libraries and you’ll find four, eight, a dozen, or even more copies of an album. With a DVS, only a single file is necessary for beat juggling (just drag the song to both virtual decks and . . . instant doubles!), and the files, unlike vinyl, don’t wear out.

Still, DJs haven’t given up on traditional vinyl altogether. DJ P speaks for many when he insists that nothing can replace real-world digging. “You can go online and dig. But to me that’s not as dope as walking into a flea market downtown and getting dirty and dusty goin’ through records.” But really, there’s no reason that DJs can’t have it both ways. “I still go vinyl hunting,” Bambaataa told me, but he digitizes everything “to keep my stuff safe.” I was surprised to hear Bambaataa—perhaps the king of all diggers—even say that “digging in the digital crates is just as fun as digging in the vinyl.”

Realistically, however, DJs are almost certainly buying less vinyl in the age of the DVS. When 2011 DMC champion DJ Vajra—who had amassed thousands of discs earlier in his career—was asked how many records he bought in the previous year he answered, “Less than ten.” “I dig a lot online,” he explained.

Digital vinyl has had an enormous impact on the day-to-day lives of DJs as they acquire music and travel to gigs. But what about the actual practice of DJing—has it changed the way DJs mix and scratch? In the early years of the technology, some DJs wouldn’t scratch with a DVS because the lag between movement and sound (i.e., latency) was too much to overcome, and the highly compressed sound files common at the time sounded thin when played on powerful sound systems. These problems have largely disappeared because of advances both in digital vinyl systems and in the quality of sound files. DJ Craze, who knows a thing or two about scratching, barely even notices the difference when he uses Traktor: “There’s a tiny lil’ difference in how it feels compared to actual vinyl but I already got used to it.”

In terms of technique, the simple fact is that a DJ setup with a laptop is a different instrument—from one without, and it is impossible to use the two in exactly the same way. How much a digital vinyl system affects a DJ’s technique and sound depends on the individual, but the potential influence is great.

Most obviously, the presence of the laptop draws the DJ’s attention, and DJs will turn to it if they’re searching for a track, dragging a song to the virtual decks, setting loops and cue points, and so on. Most of the best features of a
DVS require close interaction with the laptop. DJs using a DVS will frequently use the track pad and must remember various keyboard commands. DJs also have to learn how to read waveforms and decode the color changes. These are specialized skills that didn’t exist in the pre-digital age, but now form part of the digital DJ’s techniques.

DJs who scratch, juggle, or needle drop with digital vinyl must frequently divide their attention, toggling quickly from laptop to record and back again. For Qbert, “it’s easier to find stuff on vinyl, you know, instead of looking at the computer—that’s like an extra thing there, you know, it’s like, why do you need that?”

Looking at the screen can also be hard on the eyes. Especially in a dark room, the constant shifting of focus between the bright screen two feet away and the darkened room full of dancers beyond the turntables is a recipe for eyestrain.

With a DVS, DJs also risk getting lost in their screens, focusing more on what they see rather than what they hear. This points to what may be the most significant potential change in DJ practice: the transformation of mixing from a largely aural skill to a much more visual skill. Of course, DJs had always used their eyes to help them mix records—they looked at the grooves on the record and added visual cues to guide them, like stickers on the vinyl or lines drawn on labels. Yet none of this would help if they couldn’t hear that one song was faster or slower than another or that the kick or snare drums on the two records weren’t lining up. Learning to mix two different records so that they segue seamlessly is a painstaking process that requires hearing small differences in tempo and making slight, frequent changes to the pitch adjust sliders or the platter. The waveform displays of digital vinyl systems, however, make the DJ’s aural skills less crucial—beat matching can be done purely by lining up different colors and shapes on the display and doesn’t necessarily require the ability to hear. When it comes to digital beat matching, the eyes have it.

The presence of a laptop can also affect how DJs interact with a crowd. Some DJs put their laptops on a stand at eye-level above and between the two turntables. This positioning is convenient for the DJ, who simply stares straight ahead to see the display, but the laptop places a barrier between the DJ and the crowd, who may barely even see the man or woman behind the machine. Even if the laptop is off to the side, the DJ could spend more time looking at it than at the crowd. At a dance club this may mean that the DJ misses important cues from the dancers, and at a battle, it might lead to less interaction with the audience, whose cheers could help sway judges about the success of the routines. In his 2008 collaboration with DJ Revolution called “The DJ,” rapper KRS-One criticized DVS-dependent DJs for forsaking their audience:

If you got Serato, bravo
But if you can’t cut vinyl records you won’t be able to follow
Me—a true MC, not a new MC
Fuck the computer, it's you and me
And the crowd, and yes, they want it loud.32

On the other hand, using digital vinyl can potentially free a DJ to interact more with a crowd. Using a DVS means spending less time flipping through crates, switching records, and cueing them up, and more time gauging and engaging the audience. This is a boon not only to skilled DJs, but to the less skilled as well. Beginners can use the labor-saving features of a DVS and do little more than stand in front of the turntables, pumping up the crowd while the music plays for them. Experienced DJs understandably resent those who get paid for doing very little.

Especially frustrating for many professionals is the phenomenon of the celebrity DJ, which became more prominent in the 2000s with the rise of digital vinyl. DJ P, who had a residency at the Las Vegas casino and resort Palms, often saw celebrities come through and get gigs at the club he usually worked. "You have celebrities who don’t even know how to DJ in clubs making five to ten grand playing on a computer." P gave an example of a famous singer: “[Palms] hired her to DJ and she’s not a DJ. She didn’t know what the crossfader was, she didn’t know what the knobs were, she didn’t know nothin’.”33 He and the other resident DJ, he reports, had to show her what to do and essentially did her work for her. Using the example of a popular hip-hop producer and rapper who shall go nameless, DJ P explains how he sees digital vinyl as the culprit.

[This rapper] DJs. He sucks, but he gets paid. Why? ’Cause he’s [famous]. But he has no business DJing. Let’s say there was no such things as Serato or CD players. Do you think [he] would be able to show up at a club with 200, 300 records and rock it? No. He didn’t spend his time or his money and go out to a record store and buy these records and take them home and listen to them. Instead he downloaded these files or someone gave them their gig stick so he could put it on his computer and DJ that night. That’s the problem I have with Serato.34

Many celebrity DJs aren’t even musicians of any sort. Actress Lindsay Lohan and socialite Paris Hilton, both of whom are famous mostly for behaving badly, have been paid to DJ parties. It’s easy to imagine the disgust and resentment among working-class DJs when they see Hilton making huge amounts of money dancing in front of Serato-run turntables while sporting specially made pink headphones that she was no doubt paid to wear.35 They may take some comfort, however, in knowing that crowds don’t always respond well to celebrity DJs, as happened with Lindsay Lohan’s apparently disastrous performance at a London
club in early 2010. At this point, at least, no digital vinyl system has yet been devised that eliminates the need for skill.

Finally, digital vinyl can affect song choice and mixing style. DJs carrying crates to a gig may have a few hundred songs with them; with a laptop they will probably have tens of thousands. As Rob Swift points out, “Serato allows me to have my entire library of music at my fingertips. So no matter what the occasion, no matter what the audience demographics, I can take comfort in knowing that I’ll always be prepared to play the right music because I’ve digitized all of my music.” Club DJs using digital vinyl can more easily play the latest hits, both because they are cheaper as sound files and because they often appear on the Internet before being released on vinyl. And of course, a great deal of music is never released on vinyl. Some DJs will even download songs while at a dance club in order to meet a request or play a new release.

A DVS also makes mixing songs a much simpler matter than with regular vinyl. Many club DJs don’t play whole songs before mixing in a new tune—two verses and chorus, or even just a chorus—so it’s crucial to be able to switch quickly and seamlessly between songs. With digital vinyl, there’s no chance of fumbling a disc since the control records never need to leave the turntables. As DJ Revolution, who started mixing with vinyl, notes, “If you can save three or four seconds per song just cueing you can spend more time mixing.” Deft disc-swapping is also unnecessary in those battles that allow digital vinyl, where a control disc is like a battle record that can be reconfigured endlessly and in real time. The relative ease of quick mixing may actually encourage even quicker mixing, altering the sound and character of DJ sets and routines. DJ A-Minor reports that the dancers he spins for like the quicker mixing style that delivers more songs per hour (or minute). As he puts it, digital vinyl is “good for the ADD crowd.”

What about the effect of digital vinyl on the battle scene? It may be too early to tell, since many battles remained analog even years after digital vinyl had become popular. But perhaps a trend we’ve already seen will only accelerate. With the widespread use of battle records in the 1990s, routines changed from being built around one or two songs to more collage-like compositions created from many short fragments. If we think of control discs as the ultimate in battle records, it seems possible that routines will become denser and more complex.

Some have posited that digital vinyl has already had a profound, but indirect, impact on the battle scene. In a 2007 discussion on the Turntablism Network site, a number of DJs suggested that the technology was hurting battle culture, precisely because it had lowered some of the barriers to becoming a DJ. Enferno, an active club DJ and a former battler, offered this hypothesis:

Is it possible that Serato has been part of the reason for the battle scene dying? Serato has made club DJing much more accessible to turntablists.
When I was battling, I only knew of a small handful of battle DJs that also DJed for parties, either at clubs or as mobile DJs. Records at $5 to $7 a pop for hiphop, and $9 to $12 for import house was a very expensive business to maintain, so I think that’s why there were so few battle DJs that were doing parties. When Serato came on the market, those financial barriers were taken away, and battle DJs could then work on DJing parties, which unlike battling, brings in money. That’s just a theory.  

DJ Dini, who had competed in more than 100 battles by his count, concurred. “Serato entered my life and everything changed. Now I would much rather spend an afternoon editing music files for a gig I am doing than practicing a battle routine.”

Digital vinyl emulation systems are, as I write this, less than a decade old, and few DJs have used any one product for more than five years. There are relatively few seasoned DJs performing today who got their start with digital vinyl, so we don’t know what the long-term effect will be. Recently, however, I couldn’t help but notice a striking difference between two DJs who use Serato, one older and one younger, whom I’ve watched multiple times. DJ Bro-Rabb of Durham, North Carolina, has been mixing and scratching for more than fifteen years and is an admitted vinyl fanatic. DJ A-Minor of nearby Chapel Hill is younger and has DJed for only a few years, though he is by now quite accomplished. Bro-Rabb hardly seems to bother with his laptop, stealing occasional sideways glances when he spins. A-Minor, on the other hand, spends much more time than Bro-Rabb interacting with the computer. It’s not a crutch, and he knows Serato well enough that the extra attention isn’t due to inexperience; the laptop is simply more important for him than for Bro-Rabb. Moreover, A-Minor took the unusual step of avoiding Serato for a year while he learned to mix and scratch using traditional vinyl, logging hundreds of hours on the decks before plugging in. Even so, his relationship with his laptop is noticeably different from Bro-Rabb’s. If we can extrapolate from this example, it’s possible to imagine a subtle but significant change in technique among hip-hop DJs in the coming years.

Make no mistake: with digital vinyl the function and meaning of the record has fundamentally changed. With vinyl emulation, the disc is not a medium for storing music but a control device. The record has simultaneously been demoted and elevated. It has been relieved of its music, relegated to the role of steering wheel. Yet in losing its distinctiveness—one tone control record is more or less like another—it gains flexibility, and thus power. Ironically, the technology has been enormously successful among hip-hop DJs by disguising the digital as analog. Think for a moment how counterintuitive this approach is. Digital music devices are typically designed to call attention to themselves.
Imagine if Apple had launched the iPod in 2001 not as a sleek, glossy white device with a distinctive screen and jog wheel, but as a black, bulky tape-playing Walkman lookalike complete with protruding stop, play, rewind, and fast forward buttons. It almost certainly would have failed. But this approach is exactly the tactic that Final Scratch and its successors took. And it worked.

Back in 2002, I asked DJ A-Trak what he thought about digital DJing, at the time still a new development:

I definitely think that vinyl is fundamental to turntablism, but these new technologies can be good tools or good additions to what we do. For a while I wasn’t even paying attention to any of them, but now with the Pioneer CDJ and especially with Final Scratch and this new version called Serato Scratch (which is being developed right now) you can’t help but want to try it out and see how you can integrate it into what you do. But what you do as a turntablist stays essentially rooted in vinyl.42

A-Trak’s final sentence tells us everything we need to know about the triumph of digital vinyl over CD turntables. In the end, this is not so much a story about innovation or of features, but of a substance, its physical qualities, and the culture surrounding it.

ACADEMIES OF SCRATCH

The room has that distinctive first-day-of-class vibe. Students file in tentatively, and a nervous energy fills the air as they mill about, leaf distractedly through their papers, or introduce themselves to their classmates. The professor and his two teaching assistants, by contrast, are more relaxed as they joke among themselves and make last-minute preparations. The professor then announces that class is to begin, and the chatter stops abruptly as the students turn expectantly toward the front of the classroom.

This could be a scene from almost any American college or university at the dawn of a new semester. Yet this classroom is hardly typical. The main texts in this class are twelve-inch vinyl LPs. Instead of sitting at desks and taking notes, the students stand in front of turntables, manipulating records according to the instructor’s directions. And this classroom looks nothing like one you would find on a typical campus. This is, in fact, no university course, but the DJ 101 class at the Scratch DJ Academy in New York City, one of dozens of DJ schools scattered throughout the world43 (Figure 8.4). The goal of lowering barriers is often an explicit part of the missions of these institutions. As the Scratch DJ Academy website states plainly, “In 2002, Rob Principe and the late Jam Master
DMC battle organizer Christie Z-Pabon is less equivocal: "I have never supported all-female DJ battles in general, no matter who is throwing them. . . . There is nothing," she insists, "physically keeping girls/women from winning the nationally recognized battles that include men."66 DJ Syentific came out even more decisively in an Internet discussion. "Do I want a female competition? No. I'm equal to any man, and if he has a problem with it . . . BRING IT ON!!"67

Kuttin Kandi has seen how, if organized for the wrong reasons, these competitions can do great harm. She was once involved with a battle as a consultant and judge that turned out merely to be a means of promoting a brand of alcohol rather than promoting women DJs. The organizers were apparently less interested in the contestants' skills than in their looks, and to Kandi's horror many of the women didn't even know how to operate a mixer. "This was a complete insult to the DJ culture and an upset to women overall, because this could have potentially made those beginner female DJs not want to continue learning. . . . This could also give the wrong message to the audience," who, she worried, might assume that "women did not know how to DJ." But instead of rejecting women-only battles outright, she decided to become more active in the scene. "After this failure of a competition, I realized that it is important that I continue to be involved in what ways I can to either offer my advice to those who organize female DJ battles, even though I might not like the idea . . . because organizers will do their battles anyway, with or without us."68

It's easy to see both sides of the debate. On one hand, these competitions open battling to women who might not have considered it otherwise, and offer support and professional opportunities to participants. Some see these battles as steppingstones to mixed-gender competitions, as was the case with DJ Vtech. Her first battle was only for women. "I didn't win but it gave me a little confidence and motivated me to enter another battle." She then entered a battle in 2010 as the only woman, and won.69 On the other hand, some find the very concept offensive and argue that separate can never be equal. At this point, it's an open question as to whether the all-female DJ battle is lowering barriers, creating new ones, or doing a bit of both.

One development that seems unequivocally to have lowered barriers for women is the rise of digital DJing. CD turntables and especially digital vinyl systems have reduced the need to dig in the crates or to carry crates of records from gig to gig. In both cases these advantages may have a stronger impact on women than men. Digging in the crates is often spoken of by male DJs as physically demanding and even adventurous, more like hunting than gathering. So although anyone can shop for records, the macho culture of digging helps reinforce the sense that DJing is a masculine pursuit. Many male DJs say similar things about the heavy lifting that was necessary in earlier days, and some have
speculated to me that perhaps this is one reason there have been so few women DJs. I doubt that the need to lug heavy crates would actually stop any motivated woman, but again, there is the perception that DJing is a manly activity, and this perception may be stronger than any reality in creating barriers to women. But with CDJs and digital vinyl systems, these perceptions may be disappearing. The point here is that digital technologies have simply made it easier for anyone to become a DJ, and this is as true for women as for men.

Women DJs have always been treated differently from their male counterparts. Their abilities are questioned, and they endure condescending and sexist remarks. Sometimes even their existence is doubted. Many women DJs have had the following experience: they are carrying records or gear into a club or are even standing behind a set of turntables when a man comes up and asks them if they know where the DJ is. And when they’re not invisible, they’re all too visible. Look at the comments section of any Internet video featuring a woman DJ and with depressing predictability there will be at least one remark about her breasts. Highly skilled women are sometimes asked to pose or even DJ nude, without regard to their musical talents.

Yet at the same time, many women DJs say that their looks—and simply the novelty of being a woman behind the decks—can serve their careers well. Killa-Jewel knows that as a woman she gets more attention than men. “People want to see something that they don’t see every day. So in that respect I do have an edge. It’s just the way it is.” Or as Tyra from Saigon explains, “I know that because I’m a girl, I can attract more attention, obviously. Of course I’m going to use that to my advantage.” But every woman DJ has to decide if, when, and exactly how to use her femininity, a complicated and ever-changing calculus that has no real counterpart for men. “I wouldn’t want to wear a revealing top in a promo shot,” Tyra offers as an example. “I’m not about selling myself physically.” (She is one of those women who received—and declined—an offer to pose nude for a magazine.) Not all women agree about how far is too far, as Killa-Jewel has pointed out. “There are a lot of female DJs out there who . . . DJ with their breasts hanging out. They DJ in their bikinis and that’s not how I want to be represented as a female DJ.”

The day may never arrive when gender is no longer a factor in the DJ world—after all, gender differences, though they may evolve, will never disappear. But as changes in the scene over the past decade suggest, the time is coming when a DJ can be described as “dope” or “sick”—or whatever future slang comes to mean good—without anyone feeling the need to add the words, “for a girl.”

* * * * *

As I was drafting this chapter in the fall of 2010, two events took place, just a day apart, that I took as a sign that it was time to finish Groove Music. On the first of these two days a new era began; the next day, one came to an end.
On October 19, 2010, Tony Prince, founder of the DMC battle, the series of competitions that had been shaping the world of DJing for more than a quarter century, made an announcement that was both shocking and seemingly inevitable: the DMC had gone digital. Here is part of the text that was posted on the DMC website:

DMC, the preeminent showcase for DJ talent around the world, are pleased to announce that Serato and Rane have come on board as major sponsors of the DMC World DJ Championships, a collaboration which DMC believes will take DJ creativity to an entirely new level with the ability to use Serato’s Scratch Live. In order to balance traditional mixing and the popularity of digital vinyl playback, DMC have confirmed that from 2011 the 26-year-old event will, like the DMC DJ TEAM CHAMPIONSHIP, permit the use of the software-based system Serato Scratch Live in addition to traditional vinyl.96

The Team Championship, dominated in recent years by France's C2C and Japan's Kireek, had already allowed crews to use laptops. This change disturbed some, but at least the centerpiece of the DMC, and of battle culture in general—the Battle for World Supremacy—was still pure. No longer. Starting in 2011, vinyl emulation systems would be allowed in the six-minute solo routines of the Battle for World Supremacy. (Serato and Rane, however, did not demand exclusivity—competitors were allowed to use any DVS.)97 Within a few days thousands of words of commentary from DJs around the world poured into various turntablism sites. To some, this was a welcome development; to others it was a sign of the apocalypse.98 And then, as if one shocking development was not enough, in December 2010, DMC made another technologically driven change. In February 2011, they would launch a completely new battle: the DMC Online DJ Championships, in which DJs would post their routines to a DMC website to be judged both by the public and by expert DJs. (Germany's DJ Unkut won the inaugural twelve-round competition.) For the DMC, the twenty-first century officially arrived in 2011.

But let's return to October 2010. On the 20th of that month, the day after DMC issued its press release, the Japanese electronics giant Panasonic made an equally momentous announcement: it was discontinuing production of its legendary Technics 1200 turntables. As a representative explained to the Tokyo Reporter, "Panasonic decided to end production mainly due to a decline in demand for these analog products and also the growing difficulty of procuring key analog components necessary to sustain production."99

In late 2010, the analog era officially ended for DJs. Of course, DJs will continue to use old-style vinyl records with traditional turntables. And the
indestructible Technics 1200 will continue for years as the turntablist’s favored instrument. More and more, however, DJs will learn their craft using digital technologies; they will encounter these technologies in DJ academies, and they will use them in battle. Video games and the digital technologies that professional DJs use may well become harder to distinguish from one another, as will amateurs and professionals; distinctions between men and women DJs may become less pronounced as well.

This new era will bring both positive and negative change. There is a finite amount of talent in the world, and adding more DJs to the world will not alter that. There will simply be more bad DJs overwhelming the proportionally small number of good ones; hardworking professionals may lose jobs to poseurs and imposters, their craft devalued and underappreciated. The expanding demographics of the DJ world, on the other hand, is welcome. And the prospect of new techniques, new approaches to DJing, and new forms of creativity is tremendously exciting. A revitalized DJ scene may well await us.

“Anyone can be a DJ” is a phrase that was probably uttered more often on any given day in the 2000s than in all the decades before. Sometimes it’s spoken with contempt by experienced DJs who have lost gigs to newcomers. Sometimes it is spoken with a sense of optimism and enthusiasm by the managers and teachers of DJ academies. Often it is spoken as part of a breathless marketing campaign to sell electronic gadgets or video games. Whatever the perspective, it represents a world in which barriers to becoming a DJ have surely fallen away.
Pioneering the Hieroglyphics of the Scratch.” Rap Pages (August 1999): 32. Rice, who has also developed a notation system, notes that Qbert, J.cue1200, and DJ Enema have as well. In his instructional books on DJing, Stephen Webber uses traditional and largely unmodified notation for rhythm exercises for DJs. See his DJ Skills: The Essential Guide to Mixing and Scratching (Burlington, MA: Focal, 2007) and Turntable Technique! The Art of the DJ, 2nd ed. (Boston: Berklee Press, 2010).

77. A-Trak, “Scratchnotation,” Tablist, no. 1 (March 2002): 34. A-Trak publicly introduced his system at Skratchcon 2000, and his presentation can be seen on the Skratchcon 2000 DVD.

78. Ibid., 35.

79. Ibid.

80. See www.tmethod.com, “About TTM” (no separate URL).


83. Ibid., 64.

84. Ibid., 68.


86. See www.americasbestdj.net/bestdj/2010.htm.

87. Qbert, interview with the author.


CHAPTER 8

1. Unidentified speaker, 5 June 2002, New York City. The event was the 2002 DMC regional battle held at the B.B. King Blues Club and Grill in Manhattan.

2. B-Side, e-mail message to the author, 9 November 2010.

3. Ibid.


6. DJ Masco, telephone interview with the author, 17 November 2011.


8. Ibid.
12. Steve Dee, interview with the author; Cash Money, telephone interview with the author; DJ Faust, quoted in Stephen Webber, DJ Skills: The Essential Guide to Mixing and Scratching (Burlington, MA: Focal Press, 2008), 123; DJ Maseo, telephone interview with the author.
13. Bambaataa, telephone interview with the author.
14. DJ P, telephone interview with the author.
15. For Serato Scratch Live data sheets and manuals, see www.rane.com/scratch.html#gpm_11.
16. Specifically, Serato adds pink noise, which is somewhat like white noise in that there is no single detectable pitch but rather a wash of frequencies. Perhaps the most noticeable difference between white and pink noise is that the latter is stronger in the lower frequencies.
17. My thanks to Steve Macatee of the Rane Corporation for explaining the basics of the tone control record to me. Steve Macatee, telephone conversation with the author, 17 December 2010.
19. My thanks to DJ A-Minor for walking me through the Serato Scratch Live software.
21. Shortcut, interview with the author.
22. Craze, e-mail message to the author.
24. Bambaataa, telephone interview with the author.
25. Shortcut, interview with the author.
26. Swift, e-mail message to the author, 10 January 2008.
27. DJ P, telephone interview with the author.
28. Bambaataa, telephone interview with the author.
30. DJ Craze, e-mail message to the author.
31. DJ Qbert, interview with the author.
33. DJ P, telephone interview with the author.
34. Ibid.
com/2010/11/06/paris-hilton-is-becoming-a-dj-and-has-custom-designed-pink-headphones-built, 6 November 2010.
37. Swift, e-mail message to the author, 10 January 2008.
38. DJ Revolution, telephone interview with the author, 19 May 2009.
42. A-Trak, e-mail message to the author.
43. The first DJ school was probably the United DJ Mixing School in Sydney, Australia, which opened in 1993. See www.djssunited.com.au/school.html.
44. Online at www.scratch.com/about.
45. Online at www.dubspot.com/about.
46. Between 2003 and 2008, I observed and participated in classes in New York City, Miami, Los Angeles, Berkeley, and Tokyo, and conducted interviews with academy instructors, managers, and students as well as DJs unaffiliated with any academy. Between 2008 and 2011, I continued to interview DJs and others about the phenomenon.
47. Scratch DJ Academy, Los Angeles, 4 November 2006. Recorded with permission.
48. DJ Hapa, telephone interview with the author, 23 February 2011.
51. Swift, e-mail message to the author, 10 January 2008.
53. Tachelle Wilkes, telephone interview with the author, 20 December 2006.
55. Pone, interview with the author, 8 November 2006.
56. All quotes from DJ Quest from DJ Quest, telephone interview with the author, 10 August 2010.
57. Qbert, interview with the author, 27 March 2008.
60. For a collection of DJ Hero-related statistics and references, see http://en.wikipedia.org/wiki/DJ_Hero.
61. J.N. Gillespie, posted 29 October 2009, online at www.amazon.com/review/R3P872G25J01SP/ref=cm_cr_pr_viewpnt#R3P872G25J01SP.


66. DJ Shadow, telephone interview with the author.


68. Moldover, quoted in http://moldover.wordpress/. Moldover also explains controllerism in two videos, “Moldover’s Approach to Controllerism (1 of 2),” www.youtube.com/watch?v=L2McDeSKiOU and “Moldover’s Approach to Controllerism (2 of 2),” www.youtube.com/watch?v=dznjQlarboY.

69. This statement was made in the comment section of his own article, “Controller Battle? Watch Out DMC,” 22 June 2011, online at www.skratcwhorx.com/newspage.php?fn_mode=comments&fn_id=1735.


71. As of early 2012 a competing game, "Scratch: The Ultimate DJ,” remains in development; its release date held up because of legal troubles. See http://en.wikipedia.org/wiki/Scratch:_The_Ultimate_DJ.


74. See www.myspace.com/anomalies.

75. Ibid.


77. Killa-Jewel, telephone interview with the author.

78. Tyra from Saigon, interview with the author, North San Jose, CA, 28 March 2008.
83. Wilkes, telephone interview with the author.
84. Ibid.
86. Z-Pabon, e-mail message to author, 1 January 2007.
88. Kuttin Kandi, e-mail message to the author, 8 July 2011.
89. DJ Vtech, quoted in “Interview: Inside the Mind of a Beezo Battle DJ” (Part 2), 29 September 2010, online at http://beezoblog.com/main/?p=12345. The Beezo Battle is a series of competitions held in southern California.
91. Killa-Jewel, telephone interview with the author.
92. Tyra from Saigon, interview with the author.
93. Killa-Jewel, telephone interview with author.
94. DMC World DJ Championships, online at www.dmcddjchamps.com, 19 October 2010.
96. See, for example, “Oh wait... DMC is going digital after all,” Scratchworx, 18 October 2010, online at www.scratchworx.com/news3/comments.php?id=1562.

CONCLUSION

2. Johnny “Juice” Rosado has said that he and Terminator X scratched on that track. See Myrie, Don’t Rhyme for the Sake of Riddlin’, 110.
3. See the Appendix for a list of classic DJ tracks and the companion website for recordings of selected tracks.
Groove Music

The Art and Culture of the Hip-Hop DJ

MARK KATZ

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