



Logic Pro 7

Product Overview
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Introduction

Logic Pro 7 is the complete professional solution for music creation and audio production. It combines an award-winning sequencing and audio workstation application with a comprehensive set of studio-quality software instruments and audio effect plug-ins, state-of-the-art loop composition tools, and the ability to utilize networked computers for additional processing power.

Logic Pro 7 expands its collection of instruments and effect plug-ins with Sculpture, a component modeling synthesizer; Ultrabeat, a drum machine; Guitar Amp Pro, an amp modeling plug-in; and more. The introduction of additional software instruments solidifies the outstanding sound generation capabilities of Logic Pro 7—both in the studio and on stage.

Logic Pro 7 features optimization for the PowerPC G5 processor and seamless integration with Mac OS X, forming a highly productive system that will change the way music is composed, recorded, edited, and mixed. With distributed audio processing capability, this latest version also provides nearly unlimited processing resources through the simple addition of Macintosh computers.

Logic Pro 7 at a Glance

Logic Pro 7 turns your Macintosh computer into a multitasking workstation for audio and music production. Its extensive feature set makes it the professional all-in-one solution for composing, arranging, sound generation, mixing, remixing, and mastering. This comprehensive software application replicates all of the machines and devices used in recording studios, including mixing desks, tape recorders, dozens of effect processors, samplers, and synthesizers.

The benefits of this digital studio technology are total recall, portability, cost-effectiveness, and now, with distributed audio processing, inexpensive scalability. In addition, the wide array of software instruments in Logic Pro 7 offers an unrivaled number of integrated sonic possibilities.

The driving force behind the development and vast feature set of Logic Pro 7 is meeting the needs of professionals in the music, multimedia, movie, and broadcast businesses. To address the diversity of these fields, Logic Pro 7 offers unmatched customization capabilities. No other digital audio workstation offers so many configurable options and, as a result, can adapt so easily to meet the demands of individual preferences and workflows.

Audio Recording and Editing

Logic Pro 7 turns the Macintosh into a professional digital audio workstation that meets the highest demands for audio quality. It supports audio at 16- and 24-bit resolution and sample rates of up to 192kHz for both audio recording and playback of internal software instruments. Internal signal processing is based on 32-bit floating-point mathematics. This provides enormous headroom for internal processing, making it nearly impossible to overload the signal. The high level of sonic quality is maintained throughout the project—even during mixdown to 16-bit audio for CD release—thanks to the integrated POW-r dithering algorithm.

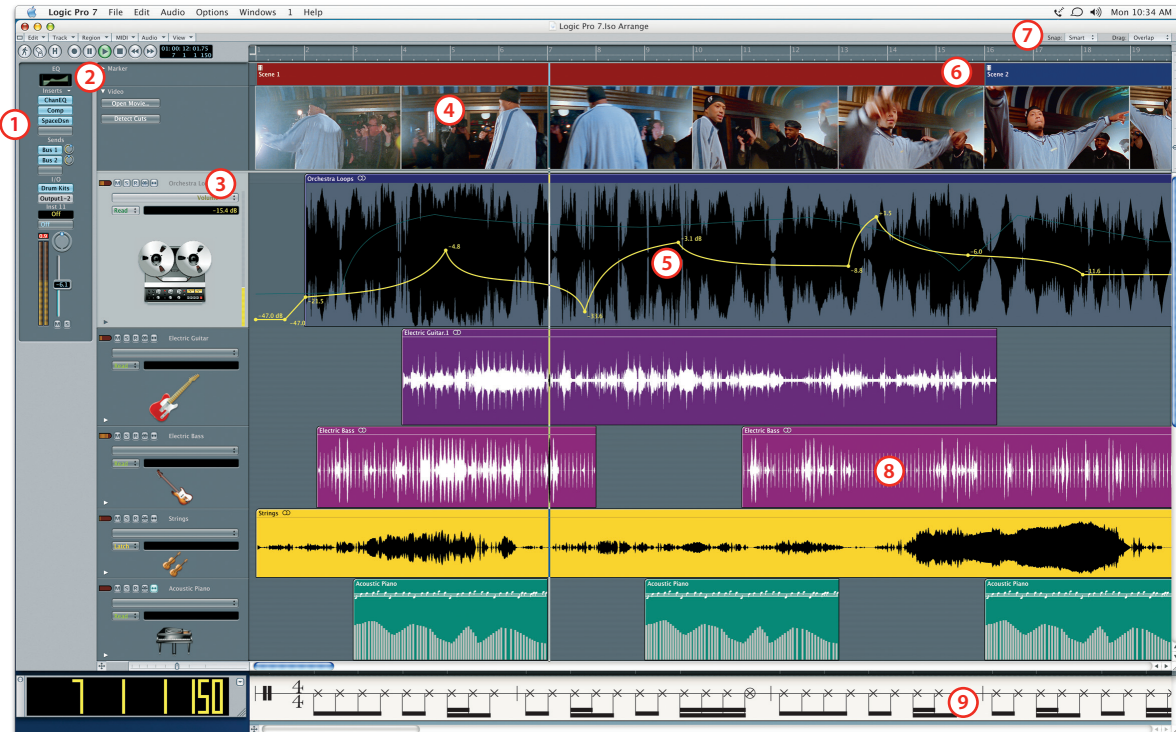
Sample editor

A powerful sample editor is incorporated in Logic Pro 7, allowing precise editing of your audio data. Beyond simple operations such as cut, copy, and paste, an extensive suite of DSP tools is also available. These tools include time stretching, pitch shifting, and formant correction. Within the sample editor, you can quantize your audio recordings, translate pitched monophonic audio recordings into notation, or extract the rhythm of an audio drum loop for use as a quantization template on MIDI performances. Additional processing possibilities are afforded by Premiere and Audiosuite format plug-in compatibility.

Arrange

The Arrange window—or simply the Arrange—forms the heart of Logic Pro 7. This is where you typically record and arrange your music. All audio and MIDI data, including Apple Loops, used in your song are represented as graphical objects. These objects can be moved and edited in multiple ways to form an elaborate arrangement. Audio recordings and MIDI keyboard performances are captured and displayed in a linear fashion, vertically divided into tracks.

Arrange Window



- ① Convenient access to all effects and instruments
- ② Recallable track effect and instrument configurations
- ③ Per-track assignment of distributed audio processing
- ④ Advanced QuickTime support with output of DV or DVCPRO over FireWire
- ⑤ Breakpoint editing of all automated parameters
- ⑥ Global tracks for editing, tempo, signatures, markers, video, and more
- ⑦ Shuffle and Auto-Crossfade Arrange Edit modes
- ⑧ Flexible, object-oriented editing of audio and MIDI
- ⑨ Real-time score transcriptions

At the top of the Arrange, you'll find the new Global Tracks. These provide general information on the song and can contain markers, tempo, and harmony data among other information. All Global Track parameters can be graphically edited in the same fashion as the track automation system, making them easy to use. The Global Tracks intelligently interact with regions in the Arrange window. The Beat Mapping Track, for example, can analyze the tempo of audio and MIDI regions and force Apple Loops and MIDI regions to follow this tempo. This is very useful when arranging music to match the natural timing variations of a human performance. The Global Tracks also incorporate the Video Track, which shows QuickTime movies as thumbnails, and can even detect movie cuts if desired.

Beyond the arrangement of audio, Apple Loops, and MIDI objects, numerous editing possibilities are offered in the Arrange. Among them is the Time Stretching feature, which allows you to quickly alter the length of an audio object to match a specified number of bars without affecting the pitch of your audio. The Marquee tool assists precise move, copy, delete, or cut edits by allowing the selection of specific portions of your graphical audio and MIDI objects.

The channel strip of the selected track is displayed to the left of the Arrange, enabling you to make mix parameter adjustments directly in this window. This facilitates fast access to mixer parameters, external MIDI devices, and internal effect and software instrument plug-ins.

You can freely customize the way the Arrange is displayed by selecting different zoom levels for each track, as well as several other visual options. This flexibility allows you to create a central interface for your projects, offering an optimized overview that precisely matches your individual needs. Put simply, this accelerates your workflow in Logic Pro 7.

Mixer

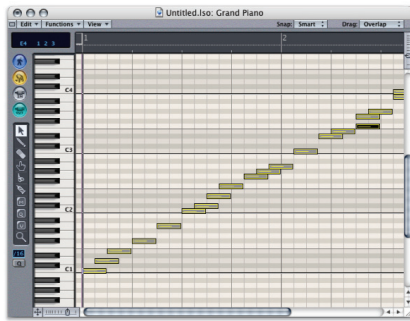
The virtual mixer in Logic Pro 7 controls a maximum of 255 audio tracks, 128 audio instrument tracks, and a nearly unlimited number of MIDI tracks. Each audio and audio instrument track can display and use up to 15 insert plug-ins and 8 effect bus sends. Logic Pro offers close to 60 effect plug-ins and supports additional Audio Units (AU) format plug-ins. It also features an exclusive collection of software instruments. As with the effects, additional AU instrument plug-ins are supported.

The parameters of software instruments and effects, as well as those of the mixing desk, are integrated into the comprehensive automation system, thereby allowing full, total-recall mixes. The mixer supports a range of hardware controllers, from simple home studio models to high-end professional control surfaces that are deeply integrated into the Logic system. Generic control surfaces can be easily customized in a convenient MIDI Learn dialog.

The final mix is written to disk in industry-standard formats such as SDII, WAV, AIFF, AAC, and MP3, including ID 3 tags. Logic Pro 7 also supports 12 surround formats, making it ideal for those involved in the creation of film and TV soundtracks. You can even bounce your song to a stereo audio file and immediately burn it to CD in your Macintosh CD-RW drive.

Pro Tools TDM support

Logic Pro 7 features integrated support of Pro Tools HD systems. You can link the native signal processing of the computer with the DSP hardware of TDM systems via the incorporated ESB TDM. This combination of the native and TDM systems ensures that all processing power is available for your use. ESB TDM also extends the functionality of the EXS24 by allowing its insertion into Aux channels of the Logic Pro 7 TDM mixer.



MIDI Processing

MIDI processing provides control over external sound devices as well as software instruments and effects. These can be internal instruments and plug-ins or Audio Units plug-ins. You can also record MIDI keyboard performances in Logic Pro 7. This two-way link between the computer's internal processing and external studio hardware underlines the position of Logic Pro 7 as the creative center of the production process.

Logic Pro 7 supports the native MIDI functions through Mac OS X Core Audio. Most MIDI tasks, such as adding new devices, routing, and so on, are determined in the Mac OS X Audio MIDI Setup utility. All information can be forwarded to Logic Pro 7, providing convenient access to your MIDI devices. An additional advantage of the deep integration of OS-native MIDI with Logic Pro 7 is reliable MIDI data transmission at minimal latencies. This enhances the playability of software instruments and accelerates workflow.

You can freely record MIDI melodies and arrangements via USB MIDI keyboards or interfaces, or import MIDI files into your projects. There are no boundaries for your imagination, as a nearly unlimited number of MIDI tracks allows the creation of vast arrangements.

The Logic Pro 7 user interface offers several editors that provide graphical and numerical control over MIDI data. The Environment window graphically illustrates data flow and enables extensive data manipulation options. The automation system in the Arrange window allows you to make precise edits to MIDI parameters while viewing the song's arrangement. The Matrix and Hyper editors allow convenient edits via the manipulation of graphical objects. The alphanumeric Event editor provides comprehensive information on every detail of recorded MIDI events.

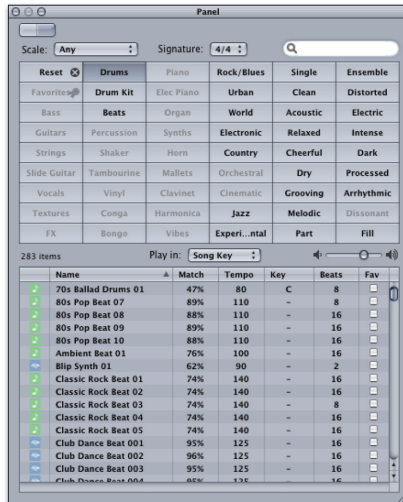
Environment window

The Environment is a virtual representation of your physical MIDI hardware. The entire data flow of your MIDI system is visible onscreen. MIDI processing objects such as arpeggiators, chord memorizers, faders, and delays can be inserted at almost any point in the data stream. The Environment provides you with the tools to perform a range of tasks. For example, you can construct dedicated remote controllers for MIDI devices, build a step sequencer, or perhaps simply fade between two audio tracks with the modulation wheel.

Notation

The Score editor perfectly transforms MIDI performances into notation—in real time—as you're playing. Elaborate layout functions and professional notation printout functions allow you to quickly deliver anything from a lead sheet to a complete orchestral score. Automatic transposition of different instruments is supported, as well as guitar tablature, drum notation, and rapid entry of song lyrics or performance notes.

Apple Loops Support



Logic Pro 7 now supports the Apple Loops file format. This enables users to time stretch and pitch shift audio files in real time. In contrast to other file formats, some Apple Loops files also contain channel strip information. Opening one of these Apple Loops recalls not only the audio, but also mixer settings. Apple Loops let you work more efficiently and provide better workflow than conventional file formats.

First introduced in Soundtrack and later in GarageBand, Apple Loops have quickly become popular. A huge range of professional sound libraries is offered in the Apple Loops format. The inclusion of Apple Loops support in Logic Pro 7 brings the file format to a professional audio and MIDI production application for the first time.

At first glance, Apple Loops appear to be integrated into Logic Pro 7 much like conventional audio files. They are visible in the Audio window, can be dragged onto an audio track, and are edited in the same fashion as other audio files. Apple Loops, however, differ from conventional audio file formats in that they allow time stretching in real time and seamlessly fit arrangements of different tempos. They can also easily match the master key of the song, as real-time pitch shifting is possible as well.

Apple Loops that incorporate all of these qualities are considered audio loops and are indicated by a blue sound wave icon. Apple Loops files with a green note icon are considered software instrument loops and offer additional functions, such as the ability to be added to a MIDI track in the Arrange window. Such loops are handled just like other MIDI regions, including individual note editing. Dragging these green Apple Loops onto a “blank” audio instrument track results in the automatic insertion of the corresponding instrument, effect, and input settings. This “whole channel” facility saves far more data than a standard audio file, and it makes the swapping of loops from one song to another or sharing ideas with other musicians simpler and faster.

Loop browsing

Logic Pro 7 offers the Apple Loops Browser for convenient searching of Apple Loops. Based on the GarageBand browser, the Apple Loops Browser lets you find loops by instrument, genre, or mood. Search results are shown as a listing in the lower half of the window. Click a filename in the list to immediately hear it. Drag the desired loop directly into the Arrange window—where it will be played in the right key and automatically time stretched to the song tempo.

Apple Loops Utility

The Apple Loops Utility allows you to create your own Apple Loops from a simple audio file. You can add data to specify the attributes of the file, allowing it to be listed and easily found in the Apple Loops Browser. The Apple Loops Utility also allows the addition of tags that describe the rhythmic elements of the audio file. This is achieved through analysis and transient detection of the audio file, resulting in a set of markers. You can also manually add markers or move existing markers to new locations. These markers provide a reference for Logic Pro 7, allowing real-time stretching of audio data.

Software Instruments



One of the aspects that makes Logic Pro 7 a unique professional music and audio production system is its comprehensive collection of software instruments. All of the instruments offer pristine sound quality achieved through the use of 32-bit internal processing. The utilization of modern technologies, such as component modeling algorithms, provides the basis for the most complex of sounds.

This uncompromising stance on technology renders instruments with brilliant responsiveness, where the smallest nuances in playing style are reflected sonically. The exclusive selection of instruments offered by Logic Pro 7 features a software sampler, synthesizers, a virtual drum machine, and faithful emulations of vintage keyboards, including the Hammond B3 Organ and Hohner D6 Clavinet.

The seamless integration of these instruments into Logic Pro 7 guarantees optimal handling and processing efficiency, no matter where you wish to use the system—on stage or in the studio.

The instruments are easily inserted into an audio instrument channel strip of the Logic Pro 7 mixer. The integrated track-based automation system allows you to graphically display and edit instrument parameters, and if you have a hardware controller, these parameters can be adjusted and recorded using real knobs and faders.

Effect Plug-ins



Given the dramatic increase in computer processing power over the past few years, the potential—and reality—of digital sound processing has developed at a staggering rate. This “native” sound processing, calculated directly on the computer processor, is rapidly replacing the use of external DSPs (digital signal processors) and effect devices. The introduction of distributed audio processing in Logic Pro 7 allows you to expand available processing power by simply adding Macintosh computers. This provides a huge amount of additional processing resources without investing in costly dedicated audio hardware.

Logic Pro 7 delivers more than 70 real-time effect plug-ins, allowing for the most innovative audio processing. The basic technical specifications—32-bit floating-point mathematics and support of audio resolutions up to 24-bit/192kHz—ensure uncompromised sound quality.

The included plug-ins are precision tools for sound processing. All offer innovative interfaces that enable you to conceptualize and realize any sound design visions you may have, with a minimum of fuss. The intuitive, ergonomic design and professional feature set of these plug-ins are the combined result of the extensive studio experience of Apple’s plug-in developers and the active exchange of knowledge with countless users. A multitude of forward-looking functions have been implemented, with many going far beyond the feature sets of traditional plug-in concepts.

In addition to the built-in effect system, Digidesign’s TDM system for Pro Tools hardware is supported. Depending on the configuration, up to 192 audio tracks and 64 buses are available. TDM plug-ins from all major developers can be used and fully automated. I/O inserts even allow the integration of external audio effect processors.

Film Scoring Features

Logic Pro 7 offers a variety of features that allow you to precisely add sound or music to film, making it easily adaptable for post-production and movie scoring. Synchronization of both external videotape machines and internal QuickTime movie files is provided. Watch the movie in a floating window on your desktop or route it to an external monitor via FireWire for viewing. Both methods are frame accurate, making it easy to fit them perfectly to your arrangements. You can also choose to display the video track as a series of thumbnails in the Global Tracks of the Arrange window. This is also where you'll find the new Automatic Movie Cut Detection feature, which sets markers at positions where scene changes in the movie are detected.

The audio track of a QuickTime movie can be extracted, and you can also export audio to the QuickTime movie. This enables you to complete movie projects in Logic Pro 7 without having to export the audio to a dedicated movie editing application. A further workflow enhancement is support for XML files. This makes it easier to work on movie projects that were started in Final Cut Pro or Soundtrack, allowing you to import audio data from these applications while retaining all positional information.

Advanced Resource Management

Logic Pro 7 is optimized for all current Apple Macintosh computers, making highly efficient use of the processing power in both single and dual G4 and G5 systems. Logic Pro 7 allows more complex musical arrangements, featuring more software instruments and effects, than comparable applications that don't offer these optimizations.

Logic Pro 7 is also optimized for Mac OS X. Its seamless integration with Core Audio provides ultra-low latency for all audio I/O. Composing on software instruments—live with a MIDI keyboard—provides a level of playability that was previously possible only with traditional instruments. Many professional musicians take advantage of this stability and performance by playing Logic software instruments live on stage.

Freeze Tracks

When working with a stand-alone native system, Freeze Tracks is the simplest way to free up processor resources, allowing you to run additional plug-ins and software instruments. If the processor load of your system is approaching its maximum when adding a software instrument or plug-in, you can simply freeze another audio or audio instrument track that you don't need to edit at the moment. The processing load of the frozen track is drastically reduced, and you can immediately take advantage of the processor resources returned by the freeze procedure for sound generation and processing duties on the track you're currently editing.

The Freeze button is found in each audio or audio instrument track of the Arrange window track list. Clicking this button locks all parameters except volume and pan. Processing load is reduced to that of a stereo audio track. To edit the parameters of the frozen track, just click the Freeze button a second time, and all parameters are instantly accessible.

The idea behind the Freeze feature is as simple as it is effective: Clicking the Freeze button renders the audio or audio instrument track to a simple audio file. This file effectively replaces the original data and is played back instead of the far more demanding real-time processing of instruments and plug-ins. Freeze is of special interest to laptop producers who are often away from the studio. Freeze allows you to work on projects that began on much more powerful systems in bigger studios with your PowerBook while you're on the road.

Distributed audio processing

While Freeze Tracks is an ideal way to expand possibilities on mobile computer systems, distributed audio processing aims to provide more power and flexibility in the studio environment. The conventional approach to increasing the processing power of native systems has been investment in costly, dedicated processors built onto expansion cards or into external hardware.

Distributed audio processing offers a more convenient and more powerful alternative: simply adding Macintosh systems via Ethernet. There's no need to open your computer, as you don't need to add an expansion card; and by its very nature, distributed audio processing provides immediate access to the latest processor technology.

Project studio. Distributed audio processing delivers the perfect link between a PowerBook and a Power Mac G5 in project studios. While the PowerBook is a reliable production and recording partner on the road, the Power Mac G5 is the ideal studio workhorse. Making them work together seamlessly optimizes workflow and maximizes productivity.

Swapping projects between the mobile computer and the stationary system in the studio normally requires fairly involved file management procedures to ensure that both systems are loaded with the same samples, instrument and plug-in settings, and audio files. Working with different audio hardware also means allocating the new audio I/O to the audio tracks and audio instrument tracks.

Using distributed audio processing in your project studio allows all files to remain on the local storage media of the master system—the hard drive of your PowerBook, for example. Starting work in the studio after collecting ideas while touring simply involves connecting your PowerBook to your studio's Power Mac G5 via Ethernet. You can continue to work as usual, but with a phenomenal boost in processing power.

Distributed audio processing enables you to make full use of external studios instantly, and use expensive studio time more effectively. You can install the simple Logic Node application—if it isn't already on the studio Macintosh—and connect a standard Ethernet cable in a few seconds. This allows you to make full use of the studio without leaving the setup you're familiar with.

Networked studio facility. In bigger studio facilities, distributed audio processing lets you flexibly serve any processing demands—whether for mixing, producing, post-production, or sound design—in a highly cost-effective way. Logic Pro 7 eliminates the need to equip each studio with an array of computers or dedicated DSP hardware, because you can pool the node computers in a central spot in the studio complex. Access the required horsepower, whenever it is needed, from every computer connected to the network.

The use of standard network technology makes a new installation or expansion of an existing network simple. Should your demands grow, you can easily expand your network and benefit from the latest processor technology available.

Distributed audio processing in Logic Pro 7 will benefit from future developments in network technology. The protocol is independent of the network hardware thanks to the use of the standard TCP. Furthermore, maintenance is simplified. One node replaces another without problems, so repairing a node doesn't mean that production has to stop. Nodes can be centrally placed outside the actual studio rooms, creating space for additional equipment and reducing noise and heat levels inside the control room.

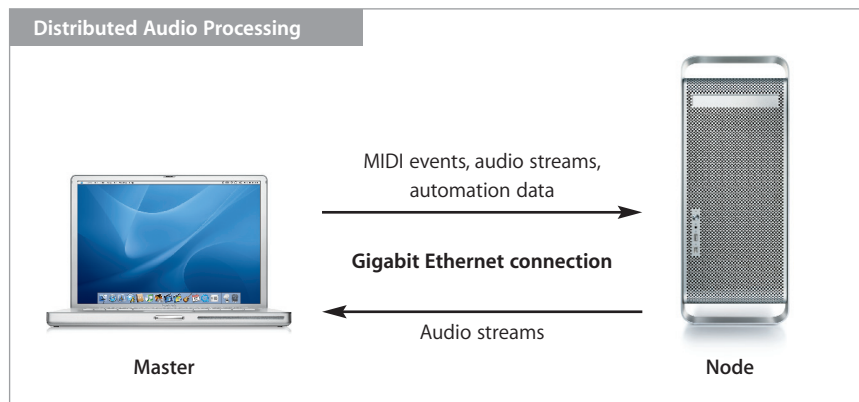
What's New in Logic Pro 7?

Distributed Audio Processing

Easy expansion of computer-based audio workstations

In modern, computer-based digital audio workstations, sounds are generated and processed either natively by the computer's main processor or in combination with additional processors. Systems with additional processors—either in external hardware or on expansion cards—can be quite costly and often require an investment in proprietary plug-ins. Adding a second computer is an obvious solution, but this hasn't been a realistic proposition until now. Complex file management issues, expensive synchronization hardware, the need for additional software licenses, and the integration of additional audio hardware have made a second computer an unsuitable option for most musicians and producers.

The new distributed audio processing feature in Logic Pro 7 offers a plug-and-play solution that provides the ability to tap networked computers for more DSP processing power. Simply add one or more Macintosh systems via Ethernet (or FireWire) connections to your Logic Pro 7 system. The result is an audio and music production system with processing power that was previously unimaginable for native-based systems.



Logic Node

A distributed audio network requires at least two Macintosh computers running Mac OS X version 10.3 or later, with one acting as a master system (a 1GHz G4 or faster processor is recommended) and additional computers serving as “nodes” (a G5 processor is recommended). A small application known as Logic Node uses each G5 computer as an additional processor for your Logic Pro 7 system. Logic Node is included in the Logic Pro 7 package and requires no additional licensing; nor must an XKey be installed on each additional computer. The distributed audio network technology supports a theoretically unlimited number of Logic Pro nodes.

The most appropriate link between the computers is a Gigabit Ethernet connection. When multiple nodes are used, the switch that manages the nodes must offer bandwidth of 1 gigabit to avoid data transfer bottlenecks. A distributed audio network running on a Gigabit Ethernet connection provides a maximum of 512 audio streams (mono).

Simple setup and convenient control

Assuming that the appropriate master and node computers are connected, you can choose which nodes and how many nodes you want to use in the audio preferences depending on the needs of your project. This ensures that your master system has reliable access to the maximum processing power of the node or nodes.

Accessing the node’s processing power in a Logic Pro 7 project is achieved by simply clicking the Track Node button, located in audio and audio instrument tracks in the Arrange window track list. When the button is activated, the bulk of the track’s audio instrument and/or effect plug-in calculations is immediately offloaded to the node’s processor.

Future scalability

The basis of distributed audio processing is an Ethernet connection that uses TCP (Transmission Control Protocol). This means that distributed audio processing not only runs on the Gigabit Ethernet interface of current PowerBook and Power Mac computers, but will also work with all current and future network technologies that support TCP. Although Gigabit Ethernet provides up to 512 audio streams (mono) at a time, this number is expected to increase with the introduction of advanced TCP-based network technologies that offer higher bandwidth.

New Software Instruments

Sculpture

Sculpture is the most technologically advanced synthesizer in Logic Pro 7. Based on component modeling technology, this new Logic Pro 7 instrument provides innovative sonic possibilities by virtually re-creating how sound is naturally produced. Component modeling technology emulates the vibration of real physical material, starting with strings. String and pad sounds are therefore a strength of Sculpture, but it can also provide a broad variety of blown (flute and reed) and percussive sounds with a crisp attack, for example. Given the flexibility afforded by its unique sound generation engine, Sculpture offers an extensive palette for innovative sound design.

The Sculpture user interface offers parameters you won’t find in traditional synthesizers. The names of these parameters reflect the role they play in creating and shaping the sound. For example, the parameter Material controls what the string is made of—nylon, steel, wood, or glass—and Exciters determine how the vibration of the string is initiated—bowing, picking, blowing, and so on. The Material control is entirely variable, and the effect of up to three Exciters can be combined to create complex vibration patterns. Adjusting these two parameters alone delivers a wide range of unique and interesting sonic results.





Ultrabeat

Ultrabeat features a comprehensive array of sound generation technologies in one software instrument. Options include virtual analog sounds, FM and component modeling synthesis, and sample playback. You can easily build your own rhythmic phrases with the integrated, fully featured step sequencer. Ultrabeat is a brilliant tool for the development of expressive loops and is suitable for the needs of electronic music producers and remixers, as well as for many different styles of music.

The foundation of Ultrabeat loops is sounds generated by its internal synthesis engine. It has three oscillators and provides the presence of virtual analog sounds, as well as the punch of an FM bass. Incorporating your own sounds—such as your sampled drum library—is achieved via one oscillator that allows sample playback. The third oscillator is solely dedicated to the generation of noise. All of these tone generation possibilities can be combined in 24 drum voices, plus a chromatically playable sound that is ideal for bass lines.

The incorporated multimode filter, distortion, bit crushing, and envelopes are individually adjustable for each voice. A modulation LFO (low-frequency oscillator) keeps the sounds dynamic and interesting. The comprehensive user interface provides convenient, precise Bezier-curve envelope editing with the mouse. A 25-note onscreen keyboard allows instant auditioning of sounds. The diverse array of sound generation, effect, and modulation capabilities provides the capacity for drum sound creation that no other drum machine—virtual or hardware—can match. Whether you're building a punchy bass drum that dominates the mix, working on a rough snare, or adding some spice to a hi-hat sound, the Ultrabeat tone generation system offers all of the tools you need to realize your sonic ambitions.

Beyond being a comprehensive synthesizer, Ultrabeat enables you to easily program your own rhythm loops with the instrument's built-in step sequencer. It's a design borrowed from the classic drum machines of the 1980s and 1990s, providing steps that trigger note events for the 25 voices. The level and gate time can be controlled for each step, and the swing parameter adds infinitely variable liveliness to sequencer events, adding a human factor to loops.



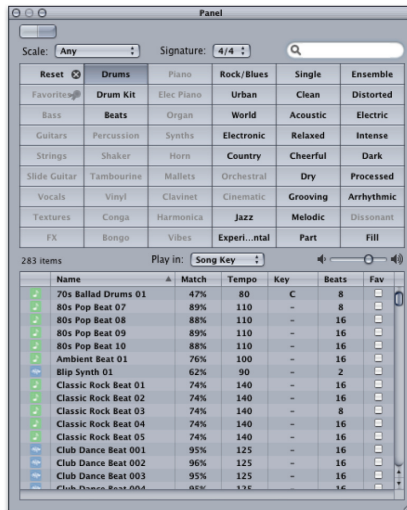
EFM1

The EFM1 completes the family of basic software instruments that include the ESM and ESE. Its sounds are generated with FM synthesis. This technology was popularized in the synthesizers of the 1980s. The EFM1 enables you to re-create the classic synthesizer sounds of this era. Whether you are creating expressive lead sounds, soft strings, powerful bass, or crystal-clear bells, the richness of FM synthesis works well in a variety of musical contexts. The tidy, straightforward interface is easily accessible and makes tweaking sounds a pleasure. Alternatively, you can let the EFM1 create its own sounds by chance through the randomize function.

GarageBand instruments

The GarageBand instruments are the collection of software instruments provided in the GarageBand application. The inclusion of these instruments enables Logic Pro 7 users to open and work on GarageBand projects. Logic Pro 7 is the ideal partner for professionally fleshing out musical ideas created in the popular GarageBand. Logic Pro 7 users also benefit from the impressive combination of sonic excellence and enhanced editing features available in its user interface.

Apple Loops Support



Apple Loops are an audio file format that—in contrast to standard audio file types—can be time stretched and transposed in real time. Time stretching of Apple Loops doesn't result in a pitch change, and the reverse is true, with pitch changes having no impact on tempo. Additional data stored in Apple Loops files enables Logic Pro 7 to handle these files with ease. In addition, some Apple Loops can be imported either as audio loops or as MIDI loops. This unique behavior provides a level of creative flexibility that was previously unimaginable.

First introduced in Soundtrack, Apple Loops have become very popular thanks to their integration in GarageBand. The supplemental information incorporated in the Apple Loops file format helps GarageBand users—including those with limited musical experience—to produce their own tracks. In a professional environment, these properties are useful for time stretching and real-time pitch shifting. Logic Pro 7 imports complete GarageBand songs as well, allowing a quick musical sketch created in GarageBand to be developed into a full-blown professional music production.

Apple Loops that can be imported as MIDI loops are called software instrument loops. These loops were created using a special development version of Logic and contain the original MIDI performance data as well as the synthesizer and effect configuration used to generate them. The result is that they sound and play exactly like the audio file version. The benefit is that users now have the freedom to change the instrument, effects, or even individual notes.

New Plug-ins

Guitar Amp Pro



The Guitar Amp Pro plug-in enables guitarists to play their instrument through faithful re-creations of guitar amplifiers and speakers—directly in Logic Pro 7. The guitar must be connected to your Mac either with an appropriate cable plugged directly into the audio input on the Mac or via an additional USB-, FireWire-, or PCI-based audio hardware interface.

Guitar Amp Pro offers a wide range of legendary guitar amplifier sounds and a number of different speakers that can be freely combined. Additional modulation effects—Vibrato and Tremolo—and a Reverb section further increase its flexibility.

Whether you are touring or rehearsing, Guitar Amp Pro means the end of lugging heavy amplifiers around. Just take your iBook or PowerBook with you. Instantly switch between different amplifiers and speakers without patching cables. Build your ideal amp and speaker combos and save them as plug-in presets. Never before have Logic-based guitarists had this level of sonic excellence and ease of use right out of the box.

Many guitarists will also benefit from Guitar Amp Pro for re-amping duties. This method involves sending a sound through an amplifier and picking up the amplified signal with a microphone. The new tonal colors that can result are much sought after for many musical styles, but the process of re-amping can be difficult and frustrating. Guitar Amp Pro provides virtual re-amping with a mouse click.

As with all other Logic Pro 7 plug-ins, Guitar Amp Pro can be inserted in any audio or audio instrument channel for sound processing. This makes it a worthwhile distortion effect not only for guitar, but also for any other type of sound.



Ringshifter

The Ringshifter is a powerful combination of a ring modulator and a frequency shifter. Both modulation effects were especially popular in the 1970s. The frequency shifter was an expensive piece of hardware at the time due to the complexity of its analog circuits. Frequency shifter effects range from spacious phasing to strange robotic timbres.

The ring modulator mode of the Ringshifter plug-in modulates the amplitude of the source signal with a second signal or an internal oscillator. This results in the addition of a metallic or clangorous character to the input audio signal.

Vocal Transformer

The Vocal Transformer allows you to manipulate vocal lines, percussive signals, or any other monophonic material in a number of interesting ways. For example, you can change vocals to a robot-like voice or increase the pitch of a vocal track until it resembles a “Mickey Mouse” voice. The basis of the Vocal Transformer’s effect processing is pitch change without disturbing the transients of the input signal.

Pitch Correction

The Pitch Correction plug-in corrects improper intonation of vocal recordings. It applies the desired pitch to a vocal track without losing the natural articulation of the performance. While this use of Pitch Correction is a valuable tool for precise vocal work, the plug-in can also be used for expressive effects: The use of large transposition intervals allows you to create interesting sonic artifacts that are added to the voice signal (sometimes referred to as the “Cher effect”).

Linear Phase EQ

The Linear Phase EQ manipulates the EQ curves of your audio signal without corrupting its phase. The interface provides the same eight-band layout and method of operation as the popular Channel EQ. You can even copy settings between the two EQs. The technology incorporated in the Linear Phase EQ is, however, all new. The Linear Phase EQ is specially tailored for mixdown and mastering situations and features integrated plug-in delay compensation.

Match EQ

The Match EQ acoustically matches two audio signals. In other words, this special EQ transfers the frequency spectrum from one signal to another. In this way, you can acoustically match various songs for an album or impart the “sound” of any reference source to your own recordings.

The Match EQ analyzes the signal of the track that it is inserted in, and settings are saved as a Match EQ template. You can change the sound of any other audio or audio instrument track by inserting the Match EQ and recalling the template.

Multimeter

The Multimeter is a powerful analysis and measurement tool for audio material, housing three functions in one plug-in window. These precise visual instruments aid the process of enhancing the mix during the mastering stage of a project.

The **Third Octave Spectrum Analyzer** is an industry-standard tool that analyzes 31 independent frequency bands. It complies with the specifications of the worldwide IEC 1260 standard. Two display modes show the effective signal average, providing a good representative overview of the perceived volume levels.

The **Goniometer** visualizes the signal’s stereo phase. This helps in finding a balanced stereo image for the mix.

The **Correlation Meter** gauges the phase relationship of a stereo signal. It shows whether a stereo signal is in phase at a glance.

The **Level Meter** shows the current signal level on a logarithmic scale.

The Correlation Meter and the Level Meter are available as separate plug-ins as well.

Interapplication Workflow Improvements

Import/Export of Final Cut Pro XML

Migrating audio content from other applications such as Soundtrack and Final Cut Pro becomes much simpler with Logic Pro 7 support of XML audio files. This open and simple protocol guarantees robust and reliable transfer of data from one application to another. Logic Pro 7 also imports audio files from other programs that support the open source XML standard.

Import/Export of QuickTime movie soundtracks

The industry-standard QuickTime movie format has long been supported by Logic Pro. Now the import and export of QuickTime movie soundtracks accelerates the speed of scoring for film, as there's no need to transfer the file back to the video application to bring sound and movie together. Extract the sound of the movie or export your Logic Pro 7 productions to your movie—Logic Pro 7 does it all, without the need to leave the application.

Automatic Movie Cut Detection

Automatic Movie Cut Detection recognizes movie cuts and—if desired—positions markers in the Global Track area or places movie thumbnails at the start points of each new scene. This provides at-a-glance access to the storyline, allowing precise arrangement of your soundtrack to match the action of the movie.

Total Bounce and AAF support

The one-click Total Bounce renders all audio and audio instrument tracks—inclusive of all active effects and automation—to new audio files. This is an extremely helpful feature when transferring data to other applications or creating application-independent backups, for example.

An even more convenient way to export files from Logic Pro 7 to other AAF-compliant multimedia applications is to directly export AAF files. These files contain data on the positioning of individual files in a project, thereby assisting in the reconstruction of Logic Pro 7 projects in other applications. Logic Pro 7 can also import AAF files, allowing you to work on projects that were started in other applications.

AAC support

Logic Pro 7 now supports the Advanced Audio Coding (AAC) format, which combines high sonic quality and multichannel support with improved encoding efficiency and better compression than MP3. Its quality makes AAC the codec of choice for many Internet, wireless, and digital broadcast situations. AAC is directly supported by iTunes, making it easy to transfer your songs to iTunes and the iPod.

New Arrange window edit modes

The main working window in Logic Pro 7 is the Arrange, which provides the best overview of a project. The Arrange is used to move and edit MIDI or audio regions in order to arrange your song. An integrated channel strip allows direct access to mixing parameters. Logic Pro 7 further refines the capabilities of the Arrange window with several additional editing modes.

- **Shuffle mode** keeps regions from overlapping by restraining movement in relation to other regions.
- Multiple **Snap mode** options align edits with definable grids, giving you more control to set the appropriate setting for the given task.
- **Crossfade mode** automatically applies crossfades to overlapping regions.

Support for Broadcast Wave Audio

The Broadcast Wave Audio format provides time-stamp information and is used for seamless exchanges of audio data between different broadcast and audio applications.

Productivity Enhancements

Improved project file management

The ability to manage all project-dependent files has been greatly enhanced in Logic Pro 7. All audio files, MIDI data, song files, plug-in and instrument settings, and movie data can be easily consolidated into a project folder. You can also create a project folder at the start of a project and have all imported media automatically copied or moved into the folder in the background as you work.

Templates

Earlier versions of Logic Pro offered the Autoload song as a customizable basis for your preferred environment. Now you can also start a new Logic Pro song by choosing one of multiple templates. You can select from preset templates or create customized templates for each type of job that you perform in Logic Pro 7. These templates also allow you to build personalized configurations for different studio environments—an advantage of special interest to laptop users.

Audio window

You can access the Finder directly from the Audio window, enabling audio files to be quickly located on any storage device. And with Audio Window Groups, you can bundle audio files, making file handling easier and faster. As an example, you could create groups for Vocals, Synths, Bass, or other genres to help you structure your audio files.

Track Solo

Another element that enhances the capabilities of the Arrange window is the Track Solo button, available for both MIDI and audio tracks and folders in the track list.

Controller assignment support

Hands-on control of your computer music productions has never been easier. Logic Pro 7 features extended support for passive fader boxes, including master keyboards equipped with faders. Simply use the Learn Controller Assignments menu option and set up your controller as desired—all information is listed and easily changed. Logic Pro 7 supports more than 128 parameters per track, catering to the ever-growing number of parameters in instruments and plug-ins.

Caps Lock Keyboard

The Caps Lock Keyboard feature takes advantage of your QWERTY computer keyboard to let you input note data—including velocity information—without a MIDI keyboard. Simply jot down melodies and chords using your computer keyboard.

External instruments

Use your external instruments as easily as internal instruments with the External Instruments I/O plug-in. It automatically monitors the correct audio inputs when a particular external MIDI device is selected.

Track Mixer improvements

The Track Mixer now offers Save/Load functions that make it easy to transfer channel strip settings. You can select multiple objects and edit them as a group, making routing faster than ever before. The Rename tool offers further convenience, enabling edits to Mixer Object colors and several other options.

Multiple undo for sample edits

Logic Pro 7 allows multiple audio data edits to be reversed. There's no need to make backup audio files before editing.

ID 3 tags for MP3 encoding

Logic Pro 7 provides built-in ID 3 tagging for MP3 files. This allows better presentation, sorting, and classification of your files without requiring you to leave the Logic Pro 7 application.

Global Tracks

The new Global Tracks provide a graphical display for control over global song events. Global Tracks appear just below the Bar Ruler in several editing windows, including the Arrange, Matrix Edit, Score Edit, and Hyper Edit windows. Global Track editing is much like Automation editing, but it has been expanded with a number of intelligent analysis tools. To prevent Global Tracks from constantly occupying precious screen space, they can be individually shown or hidden.

Those working on movie scores will especially appreciate the benefits of Global Tracks such as the **Video Track**. This track shows the movie as thumbnails and has an option to detect movie cuts. A marker can be automatically placed in the Marker Track at every detected cut position. In contrast to "normal" markers, movie markers are SMPTE synchronized to the movie and retain their positions even when the tempo is changed.

The **Tempo Track** contains all song tempo changes and allows you to insert new events and edit them graphically.

The **Chord Track** can be used to indicate chords and maintains a harmonic map of the song. The information can be inserted manually or derived from MIDI region data. You can then make global harmonic changes, which appropriate Apple Loops and MIDI regions will conform to.

The **Transpose Track** indicates and allows changes to the chord root. This is especially useful when you want to transpose an entire song, resulting in a new chord progression. The Transpose Track and Chord Track are always linked, so that changes to one result in the appropriate change in the other.


The **Signature Track** displays all basic time and key signatures in a song. This information is especially pertinent for the Score editor, but also influences the functionality of Apple Loops.

Software Instruments

Sculpture

Sculpture is a unique software synthesizer that is seamlessly integrated into the Logic Pro 7 system. It offers an inexhaustible variety of naturalistic sounds, based on component modeling technology. A special strength of this instrument is its string, flute, and pad sounds—sounds that are especially sought after by composers. Sharp percussive sounds, such as xylophones, are easily created. Given this broad scope for sound creation, Sculpture is a useful resource for unconventional sound design as well.

Although other Logic Pro 7 instruments are partially based on component modeling technology, the basic approach of Sculpture is unique: It provides a comprehensive model of a vibrating string or bar without the need for samples of a real instrument. As a result, its sounds retain the natural character and expressiveness of a real instrument, even though the sound is created virtually.



The image shows the Sculpture software instrument interface. Ten red circles with white numbers are placed over various controls to highlight specific features:

- 1: Pick-up position control
- 2: Stimulating or interfering with vibration method
- 3: LFO1 control
- 4: Material selection knob
- 5: Multimode filter
- 6: Morph multiple parameters at once
- 7: Stereo Delay control
- 8: Envelope and stereo spreader
- 9: Resonant Body EQ
- 10: Recordable controller envelopes

- ① Select the position of the pick-up
- ② Select the method for stimulating or interfering with vibration
- ③ Two syncable LFOs
- ④ Select the material of the string
- ⑤ Multimode filter
- ⑥ Morph multiple parameters at once
- ⑦ Stereo Delay
- ⑧ Envelope and stereo spreader
- ⑨ Resonant Body EQ
- ⑩ Recordable controller envelopes

The core of Sculpture is a sophisticated algorithm that combines different models of vibrating natural material: It can be glass, steel, nylon, or wood—or a mixture of all of them. You can even morph between them, starting with a nylon string in the attack phase of the sound and then decaying to the wood or metal bar of a xylophone. A second element of the algorithm describes the way the vibration is initiated. This means that you can choose a vibration that is bowed, plucked, or blown, or variations of these sounds. You can also determine where the pick-up is positioned.

Further tweaks to the sound can be achieved by two additional objects that can disturb the vibration. For these objects, the position and strength of the disturbance are variable. In contrast to classical synthesizer parameters, changes in Sculpture result in sounds that have far more complex sonic details. A change to a single object parameter may result in a new timbre, dynamics, and harmonics.

Beyond specific component modeling parameters, Sculpture offers the classic ADSR envelope of traditional analog synthesizers as well. This tool provides instant access to conventional parameters that most users are acquainted with. Classic fine-tuning of sounds is achieved with the three-band EQ in Sculpture.

Its effect section also offers a Stereo Delay that features all traditional parameters plus an X/Y-Pad for Spread and Groove. The Stereo Delay can be synchronized to the song tempo with a click on the sync button. The multimode filter houses high-pass, low-pass, peak, notch, and band-pass filters. The brilliance of the filter is controlled with the Cutoff parameter. Resonance emphasizes the frequencies determined by the Cutoff value.

Faithful emulation of natural string sounds requires use of modulations, such as Vibrato, to deliver convincing results. Sculpture provides an extensive array of different methods for generating this and other modulations, including two assignable LFOs, a fixed LFO for Vibrato, two Jitter generators that add random variations with an adjustable bandwidth, and two Randomizers that change values only at note on.

Another part of the modulation section offers two control envelopes that can be used as “standard” envelopes, where any envelope shape can be drawn. You can also assign external controller hardware to the envelope’s controllers, allowing recording, playback, and modification of incoming MIDI events that are interpreted as an envelope. You can even loop the envelopes you’ve recorded or drawn.

The most powerful way of creating complex modulation effects, however, is with the Morph Pad. It is used for more than 20 morphable parameters. The values of these parameters are indicated in orange in the user interface. Five parameters can be assigned to the Morph Pad at one time. Move the morph point in the Morph Pad, and you change the values of multiple parameters simultaneously. These movements can be further modified or looped, for example.

Component modeling technology is enjoying something of a renaissance in the industry. Its potential has always been acclaimed because of the sonic excellence it offers, but it has rarely been put into practice. The resources offered by today’s native workstations mean that this method of synthesis no longer requires the expensive, proprietary hardware used by synthesizers of the mid-1990s. Sculpture brings the technology to your Macintosh as a Logic Pro 7 instrument with powerful sound generation features and optimal control facilities—placing Sculpture at the vanguard of modern component modeling technology.

Ultrabeat

Ultrabeat is a feature-rich drum synthesizer for Logic Pro 7. It represents a natural progression from the drum machines of the early eighties. Sonically, this software instrument is top-notch, especially in techno, house, hip-hop, and derivative genres. Ultrabeat provides all features needed to create totally new sounds or to manipulate samples of natural sounds, making it the instrument of choice for all producers and remixers searching for an intuitive, flexible, and sonically exciting way to create drum loops.

The screenshot shows the Ultrabeat interface with the following features highlighted by numbered callouts:

- 1: Piano key identifier
- 2: Key assignment and mix section
- 3: 32-step sequencer
- 4: Noise generator
- 5: OSC 1 with phase oscillation or FM
- 6: OSC 2 with phase oscillation, sample playback, or component modeling
- 7: Multimode filter
- 8: Effect section with bit crushing and distortion
- 9: Two-band parameter
- 10: Four envelopes with Bezier curves for refined editing

A maximum count of 25 voices ensures that Ultrabeat provides enough polyphony for the most complex of loops. Twenty-four voices are assigned to drum sounds, and another voice is chromatically playable, making it ideal for bass lines. All voices are listed in the key assignment and mix section. A click on the name of a drum sound in this list allows instant access to all voice parameters. A simple mixer with Volume, Pan, Output Selector, and Mute/Solo buttons is integrated in this list as well. Each Ultrabeat voice can be assigned to one of 16 individual outputs in the mixer, and a piano keyboard alongside the key assignment and mix section allows you to instantly audition any sound.

The Ultrabeat tone generation system is based on two multiengine oscillators, a noise generator, and a ring modulator. The first oscillator houses a phase oscillator and an FM synthesizer. The second offers phase oscillation, sample playback, and a physical string model. The noise generator is the third sound source for a synthesized Ultrabeat

sound. Its dedicated multimode filter, in combination with the dirt parameter, lets you specify the right amount of noise. The signal can be further processed with the ring modulator.

The rich palette of effects, filters, and EQs allows ultra-precise editing of voices, from slight corrections of the tonal character to radical changes. The overdrive section features a distortion and bit crusher. Generally, these types of effects make the sound more aggressive and maximize the tension of the mix. The overdrive is specially tailored to provide the best results when processing percussive sounds. The multimode filter offers four different 12- or 24-dB cutoff modes. It provides effective, full-bodied tweaking of lower frequencies. Modulation of filter parameters results in a stylish effect that makes the sound more lively. Ring modulation adds dissonances and overtones to the signals of both oscillators. Depending on settings, the effect is somewhat reminiscent of bell sounds, but it may add noisy characteristics as well. The refined two-band parametric EQ precisely sculpts the sonic details of each drum sound.

The pan/spread section positions each drum sound in the stereo field. The Stereo Spread option distributes the sound to the left or right channel, depending on frequency. Pan modulation lets you vary the stereo position of the voice. This modulation can be freely linked to one of the multiple modulation sources in Ultrabeat. Both effects add sonic life and enhance the impression of the stereo mix.

Two of the modulation sources are the LFOs. Beyond traditional LFO parameters, they offer the cycles parameter, which allows you to define the number of LFO cycles. This feature is ideal for programming drum flams or other sounds with rapidly repeating transients. Further modulation sources include the envelopes. Two are freely assignable. The others are hard wired to filter cutoff and main output volume, but can be assigned in the Modulation Sources menu as well. The envelopes are one-shot by default, meeting the general needs of drum sound playback. To control the length of the envelope via MIDI—for cymbal sounds, for example—you can click the Sustain button. The use of Bezier curves makes it easy to edit the envelopes with the mouse. When you want to edit more precisely, you can zoom in on the attack or decay portion of the envelope.

The Ultrabeat step sequencer captures the feel of “analog” step sequencers. It provides the same intuitive interface popularized in the early eighties, but expands on the concept by providing deep control of instrument parameters. Because Ultrabeat is seamlessly integrated into Logic Pro 7, its step sequencer is always synced to the clock in Logic Pro 7.

Each sequence comprises up to 32 steps plus further information on trigger events and parameter changes. You can choose global or step-based parameter changes by switching between voice and step edit modes. In the first mode, the change is destructive; in the second, the parameter change is reset as soon as the step is over. The swing parameter adjusts shuffle intensity. Accent increases the output volume of all drum voices for a particular step. The sequencer is able to save 24 patterns, composed of the sequencer and tone generation data of all 25 voice modules, allowing different loops to be recorded in the same instrument.

This approach ensures that Ultrabeat loops always remain diverse, lively, and interesting, so you’ll never become bored. Beyond the sheer variety offered by the tone generation system, the sequencing facilities are outstanding for an electronic percussion instrument—whether software or hardware.

EXS24



Since its release in 2000, the EXS24 software sampler has become a standard among Logic-based musicians and producers. You can easily and quickly incorporate sample-based sounds into your productions with uncompromised sound quality of up to 24-bit/192kHz resolution.

The EXS24 offers outstanding support for a wide range of sample library formats, including EXS24 native, Akai, GigaSampler, SampleCell II, SoundFont2, and REX2, providing users with access to a huge number of sound libraries. The EXS24 allows the use of huge sample libraries, because memory is limited only by the computer's RAM or by hard disk capacity when using Virtual Sample Memory (VSM).

The EXS24 is a reliable and productive partner in every studio, featuring sample-accurate timing, total recall, and an intuitive operating concept. If desired, up to 16 individual outputs can be addressed, allowing further processing of EXS24 sounds with the extensive range of Logic Pro effect plug-ins.

The modulation matrix, borrowed from the ES2 synthesizer, provides comprehensive routing possibilities, allowing countless creative sound processing options. Sources include the three LFOs, the two snappy envelopes, or any MIDI controller. In addition, the level of the sidechain input can be routed to Sample Select, Sample Start, Pitch, Glide, Volume, Pan, envelope times, parameters of LFOs, or filters.

An excellent-sounding multimode filter completes the feature set, providing adjustable slopes, variable filter overdrive amount, and a fatness circuit that ensures excellent low-frequency response, even at high resonance settings.

In addition, the Logic Pro ESB TDM allows the direct insertion of up to 32 instances of Xtreme Sampler 24 Bit into the Aux channels of the Logic TDM mixer. The stereo output signals of each EXS24 instance can be treated via any of the processing options afforded by the TDM DSP environment, such as TDM plug-ins.

Each EXS24 TDM is calculated by the host processor and places no overhead on the TDM DSPs. The MIDI performances of each EXS24 TDM instance are recorded on TDM Auxiliary tracks and are controlled directly in Logic. This eliminates the need for OMS, thereby providing the benefit of sample-accurate playback for all instances of the EXS24 TDM.

ES2



Able to combine the full-bodied energy of analog systems with the shimmering detail of glistening digital tone generation, the ES2 owes its enormous sonic wealth to an unsurpassed palette of in-demand synthesis techniques. It handles the warm subtractive synthesis of classic analog synthesizers with the same ease as it does popular digital synthesis techniques such as vector synthesis, wavetable scanning, and frequency modulation (FM). The clearly laid-out structure, well-devised construction, and aids such as tool tips put this enormous potential quickly and easily at your disposal. If needed, the intelligent random sound programmer with selectable destinations can be used to supply fresh ideas. And, thanks to the adjustable strength parameter, these can be either radically new sounds or subtle alterations, at your command. Use up to 64 ES2 inserts simultaneously, depending on available computer power. Each ES2 has 32 voices, each offering three especially flexible oscillators, two filters, and extensive modulation possibilities. Select Unison and layer up to 32 voices for huge, imposing sonic monuments.

In addition to the classic triangle, square, sawtooth, and noise waveforms, each of the three oscillators in an ES2 voice can generate 100 digital waveforms. Wavetable scanning without any audible steps determines which of these digital waveforms is heard. This can be dynamically modulated in real time to provide enormously animated textures. Add to this oscillator synchronization for aggression and pulsewidth modulation for movement. A ring modulator offers unpolished metal, and with linear frequency modulation, the ES2 can easily generate sounds known from famous FM synthesizers.

Regardless of the synthesis technique you choose, the vector envelope can store up to 15 oscillator mixes plus the values of two additional, freely selectable parameters—and crossfade automatically and dynamically between these points. Imagine, for example, a sound starting with colored noise, transforming into a bell, and ending with an FM bass. The vector envelope even runs in sync with song tempo if desired.

This dynamic oscillator mix is then passed through two resonance-capable filters—a multimode and a low-pass filter. These can be connected in serial or parallel modes, a process that is not only clearly audible, but graphically displayed as well. The multimode filter can be used as a peak, band reject, low-pass, band-pass, or high-pass filter and offers an adjustable distortion circuit. The separate low-pass filter offers three slopes; for harsh to metallic sounds, its frequency can be modulated from oscillator 1. The fatness circuit ensures fat basses, even at high resonance settings. For sonic variety normally found in modular hardware synthesizers, the proportions of both filters can be adjusted in both serial and parallel modes. And if you are looking for really deep basses, just mix the sine wave of oscillator 1 with the filters' output.

Beside a multitude of MIDI signals, each voice offers two LFOs, one of which is tempo-syncable, and three exceedingly fast envelopes as modulation sources. Using 10 freely assignable modulation paths, these 20 sources can be routed to 30 destinations, allowing almost every parameter of the ES2 to be controlled. The modulation intensity of each modulation path itself can also be modulated by one of the 20 sources. In this way, uncannily expressive sounds can be sculpted, which can be enlivened further with an adjustable distortion circuit. An additional modulation effect provides high-quality chorus, phaser, or flanger, providing the finishing touch to all sonic creations. Because over 400 sounds created by renowned sound designers are included, the awesome potential of the ES2 is on display right from the start.

ES1

The ES1 software synthesizer has the heart of many classic analog favorites, and it includes all of the details and facilities that fans of this type of sound generation know and love. It is rich with character and elegantly combines 30 years of synthesizer history for the Logic platform.

Offering up to 16-voice polyphony, every ES1 voice features a main oscillator and suboscillator delivering the raw sonic material shaped by the analog ES1 filter. Each oscillator features a set of “classic” waveforms including triangle, sawtooth, and variable pulse. The suboscillator, with its own five waveforms, operates one or two octaves below the main oscillator, adding a solid bass fundament. In addition, the suboscillator provides a noise source and an input for an external audio signal, allowing audio tracks to be processed with rhythmically changing filter movements.

All of this technology is perfect if you want to create earth-shaking basses, rich pads, textures, screaming leads, ultra-sharp percussion, or exotic effects in Logic.





The E-Series

The design of the EFM1, ESM, ESE, and ESP Logic instruments combines high sound quality, simple handling, and modest processing demands in an ideal way.

The EFM1 is based on the frequency modulation sound generation method. Its straightforward interface provides access to classic FM synthesizer sounds ranging from pads and strings to full-bodied basses and crystal-clear bells.

The ESM is a monophonic bass synthesizer that is ideal for the creation of powerful basses and expressive lead sounds. It provides variable selection between sawtooth and rectangular waves. A source of particular pleasure is the resonance-capable dynamic low-pass filter, with a biting slope characteristic of 24 dB.

One of the strengths of the eight-voice polyphonic ESP are the characteristic eighties pop music synthesizer brass sounds, for example. In addition to the oscillator, suboscillator, and filter, the ESP offers an LFO for creating wah-wah effects and an ADSR envelope generator for precise level control.

The ESE is an eight-voice polyphonic synthesizer as well. It is specially designed for pad sounds. The basis of its sound generation are sawtooth or rectangular waves, which can be mixed in a near-infinite variety of base tones. The sawtooth wave can be modulated in frequency, the rectangular wave in impulse width. The ESE offers selectable attack and release times, a dynamic low-pass filter, and a three-step chorus/ensemble effect.

EVD6



The Hohner Clavinet D6 is one of the classic keyboard sounds of the 20th century. Although the D6 has always been closely linked to funk, the sound is used in countless pop, reggae, and dance productions. The EVD6 mathematically re-creates every subtle nuance of the original without using any samples, making it an extremely playable instrument.

Using a real-time component modeling algorithm, each aspect of the Hohner Clavinet D6 has been painstakingly modeled in the EVD6. No samples are used during the real-time tone generation process, providing an emulation that captures the essence of the original with unparalleled realism and up to 24 voices. This modeled approach has ensured that, like the original Hohner Clavinets, the sound of the EVD6 reacts realistically and dynamically to every nuance of your performance, including the typical string noises on key release. Subtle playing results in not only a lower volume, but also a softer sound. Hard playing results in a harsher, more cutting tone. Conventional sample-based reproductions simply cannot approach the inherent musicality of the EVD6.

The EVD6 front panel is clearly laid out and provides the perfect blend of retro styling and useful, easy-to-use tools. The voice architecture of the EVD6 incorporates all of the facilities in the original instrument and provides you with a number of additional parameters, any of which can be used to subtly or radically customize the sound. Modifying the tonal character of the EVD6 is achieved through simple click-and-drag operations. Among the parameters available are tuning, stretch tuning, warmth, four filter switches, stereo spread, and damper controls. The EVD6 offers all the pick-up settings of the original and allows you to change their position. This can even be done using automation. Further control is provided through several dedicated string parameters, as well as parameters to adjust the sound properties while striking and releasing the keys. This ability to change the “physical” parameters of the EVD6 sound engine allows the creation of beautiful variations of the clavinet sound as well as related instruments like unique exotic string sounds.

The “funky” Clavinet sounds of the 1970s to the present would not have been possible without the use of the popular ‘70s effect units. You will be happy to know that the effects of this era are accordingly built into the EVD6; it incorporates an effects section including Phaser/Chorus/Flanger, Wah Wah, and Distortion. These processors can be positioned in several serial configurations. In addition, the EVD6 package includes a separate Logic effect plug-in consisting of Wah Wah and Distortion.

As part of the software instruments in Logic Pro, the EVD6 is seamlessly integrated in its 32-bit mixer, ensuring that its audio output remains clear and crisp throughout the signal path. All DSP effects available to Logic can be used for further treatment. Every EVD6 parameter movement can be recorded, edited, and played back quickly and easily, taking advantage of the 32-bit track automation system. The EVD6 is also fully supported by the Logic Control line of hardware units, making real-time parameter adjustments for sound programming and automation a breeze.

EVB3



The Hammond B3 organ is one of the most influential keyboard instruments of the 20th century. The characteristic B3 sound has been and continues to be heard in a wide range of musical styles, including Motown, jazz, pop, rock, funk, reggae, dance, country, blues, soul, and gospel. For anyone working in a computer-based environment with a Logic system, this unmistakably warm sound is an essential. The EVB3 flawlessly re-creates the sound of the B3 in software. As with all Logic instruments, the user interface is intuitive and offers far more tonal flexibility than the original instrument.

The Hammond B3, with bench and Leslie cabinet, weighs in at over 500 pounds. Starting the machine can be awkward and unreliable. Power fluctuations may result in the B3 playing sharp or flat or just shutting down. Over time, general reliability issues can start to creep in, magnified by the increasing rarity of replacement parts. At current prices, buying a well-preserved B3 with a Leslie cabinet could cost thousands of dollars. Needless to say, these problems are eliminated when you plug in the EVB3.

Each aspect and every familiar nuance of the B3 have been painstakingly modeled in the EVB3. A hybrid component modeling process provides an emulation that captures the essence of the original with unsurpassed realism in real time. This approach ensures that all of the B3’s subtle nuances, including characteristic artifacts such as the loudness robbing and tapering, the cross-talk of the tone wheels, the tube sound, the key-click, and the harmonic cross-modulations, are reproduced.

The EVB3 front panel is clearly laid out and simple to operate. A number of clever touches improve on the original, such as the 12 editable preset keys. It is even possible to morph in real time between the 12 presets with a freely selectable controller. Animated drawbars visually reflect the settings. As with the B3, the drawbar section provides over 250 million possible combinations. Enveloping for both manuals and pedals can be independently controlled. The EVB3 Scanner Vibrato can be switched between constant and variable modes, and the amount and rate can be freely set. Special parameters allow the creation of clean, “brand new” B3 sounds as well as the distinct sound of a “well aged” one.

The B3 sound owes much to the famous Leslie rotating speaker cabinets, so the EVB3 features its own modeled onboard rotary cabinet. The classic 145, 147, and 122 models use a 40-watt tube amplifier, an 800Hz passive crossover, a rotating treble horn, and a rotating bass speaker. The Leslie produces three distinct sounds: the Chorale effect, when the speakers rotate slowly; Tremolo, when they spin quickly; and Brake, which stops the rotors by disconnecting the motors. Needless to say, all of these classic features are emulated flawlessly by the EVB3. And because the characteristic organ

effects sound great on other instruments as well, the EVB3 ships with three separate Logic effect plug-ins, making Scanner Vibrato, Rotor Cabinet, and the warm Tube Distortion available to any audio source in Logic Pro.

As part of the software instruments in Logic Pro, the EVB3 is seamlessly integrated in its 32-bit mixer, ensuring that audio output remains clear and crisp throughout the signal path. All effects available to Logic Pro can be used for further treatment. Every EVB3 parameter can be automated quickly and easily, taking advantage of the 32-bit track automation system. This provides incredibly precise real-time playback of automated parameter movements. The EVB3 is also fully supported by the Logic Control line of hardware units, making real-time drawbar adjustments easy.

EVP88



Fender Rhodes, Wurlitzer, Hohner—the sounds of these vintage electric pianos have been legendary for decades. While the original instruments are often criticized for being maintenance-intensive, big, and heavy, their sounds can be used in the Logic system with none of the hassle. The EVP88 is precise in every detail; all sounds are reproduced authentically, without the use of samples. This modeling technique results in a software instrument that not only sounds great, but responds to every subtle playing nuance with incredible dynamism. In addition, the deep integration of the EVP88 in Logic guarantees stability, ease of use, and perfect total-recall automation.

While vintage Fender Rhodes, Wurlitzer, and Hohner electric pianos produce their sounds electromechanically, the EVP88 digitally produces astonishingly accurate replications, via native real-time tone generation. The EVP88 does not just statically re-create an instrument's tonal characteristics, as would be the case with samples. Rather, it expressively reacts to the player's every nuance with impressive realism. And like its vintage hardware predecessors, the EVP88 can be played with full polyphony over a range of 88 notes, with 88 voices.

The EVP88 provides the highly sought-after sounds from electric pianos such as the Fender Rhodes Mark I of the Suitcase series and Mark I and II of the Stage series, the Wurlitzer Electric Piano 200A, and the Hohner Electra Piano, as well as many tasteful variations.

Luckily, it doesn't require a toolkit to change these tonal characteristics so that they fit your music perfectly. Simply set the decay and release time to suit, and emphasize the bell or fade in damper noises as required. For a sound that's even closer to the original, the EVP88's intonation can be further contoured with the Stretched Tuning Curve and Warmth controls. An extensive effects section ensures that the unique vintage character of these instruments comes to life in your music today.

A key element of the effects section of the EVP88 is the two-band EQ for bass and treble manipulation, based on the renowned Fat EQ. The drive circuit with gain and tone controls gives the sound the right bite. A four-step Phaser with color control and built-in distortion adds further warmth and animation. The Tremolo, with rate and intensity controls, re-creates the classic effects that made so many Rhodes passages so memorable. Both Phaser and Tremolo have an adjustable stereophase control to help create a broad spectrum of stereo effects. The variable-intensity Chorus adds a final high-quality shimmer.

Effect Plug-ins



Reverb

Space Designer

Space Designer is the high-end reverb plug-in in Logic Pro 7. Its real-time convolution process makes it possible to produce a reverb that is virtually indistinguishable from that of a real room or hall. The real-time calculation process merges the input signal with a reverberation sample—the impulse response (IR)—taken from any acoustic space, such as a room, hall, or cathedral. The result sounds as if the input signal had been recorded directly in the sampled room. The reverb can be further shaped via Space Designer’s comprehensive parameter set. Space Designer ships with a library of more than 1000 impulse responses. These include real rooms and halls, as well as legendary classic and contemporary reverb units. You can also record your own impulse responses.

The ability to create and edit customized convolution reverbs sets Space Designer apart. In addition to sampled reverbs, Space Designer features a unique method for the creation of high-quality synthetic reverbs, through the use of specially designed envelopes. The resulting reverbs are dense and smooth, complementing your mix without the need to massively boost effect levels.

Regardless of whether you use IR samples or create your own synthetic reverbs, the sound can be quickly customized with the plug-in’s innovative volume, filter, and density envelopes. Smooth envelope shapes can be modeled onscreen with ease. The 12- or 6-dB low-pass, band-pass, and high-pass filters are equally suited for fine-tuning your reverb sound or creating experimental sound effects. As with all Logic Pro 7 plug-ins, Space Designer supports sample rates up to 192kHz. The intuitive, hands-on graphical user interface, the ability to create stunningly realistic reverbs using IR samples, and the unique reverb synthesis facilities make Space Designer a highly professional tool that is perfect for any sound design or music production situation.

PlatinumVerb

The PlatinumVerb plug-in sonically matches other premium native reverb algorithms, without massively taxing your processor—a sure indicator of a brilliant algorithm. The sustain phase of the PlatinumVerb is impressive, with a silky tone that is normally found only in the best stand-alone devices. The true dual-band concept maximizes natural room characteristics during the release phase, and the comprehensive parameter set guarantees precise control when mixing.

Enverb

The Enverb plug-in provides convenient and precise control over the envelope of a diffused reverb, making customized reverb creation an extremely fast and easy process. You can create an impressive reversed reverb effect in real time, or just a classic gated reverb through control of the original signal's delay time. The basic tonal quality of the reverb cluster—featuring dual-band technology—can be accurately controlled with a number of parameters.

Filter and Vocoder

EVOC20

The EVOC20 provides three powerful tools for sound design: a classic polyphonic vocoder with built-in synthesizer, a formant filter bank, and a pitch-tracking vocoder. Each plug-in provides maximum flexibility and features pristine 32-bit sound quality.

The EVOC20 PS combines a vocoder with a polyphonic synthesizer and is playable in real time. Each of its 16 voices features two oscillators that offer 50 special waveforms, FM capabilities, and colored noise. This synthesis signal can be articulated by any input signal, resulting in classic vocoder sounds such as talking robots, singing strings, percussive choirs, and more. Up to 20 filter bands can be used for the articulation process. The Unvoiced/Voiced Detector increases speech audibility. You can adjust the sensitivity of the EVOC20 PS to changes in the analysis signal or capture the harmonic content of the analysis signal with the Freeze function. Formants can be spread, moved, or modulated by the syncable LFO—for subtle or extreme sonic transformations—and further processed by the incorporated Ensemble effect, providing that familiar warm, swirling sound of vintage vocoders.

The EVOC20 TO architecture is similar to that of the EVOC020 PS: up to 20 filter bands, modulatable formants, controllable filter resonance for sharp or soft vocoder sounds, Freeze, adjustable reaction times, and the U/V Detection circuit. The EVOC20 TO differs fundamentally from the polyphonic vocoder in its use of an audio track, or the monophonic pitch-tracking oscillator, for the synthesis signal. The pitch-tracking oscillator follows the pitch of the analysis signal with great accuracy. The oscillator's waveform can be switched between sawtooth and two-oscillator FM, and pitch tracking can be limited to any musical scale, leading to interesting effects in conjunction with the input signal. Truly surprising sounds can result when polyphonic input signals or drums are used with the EVOC20 TO.

Lovers of analog filter banks will be thrilled with this plug-in. The EVOC20 FB offers the core of every vocoder, with two distinct, fully adjustable filter banks (A/B). The input signal runs through both filter banks in parallel. Each provides up to 20 filter bands, which can be blended manually or via a syncable LFO. Each discrete filter band features independent level controls, with the option of frequency dampening by percentage, enabling precise and drastic sound sculpting. Additional filter resonance, adjustable filter slopes, and distortion afford an expansive range of tonal colors. A second LFO, syncable to song tempo, facilitates the modulation of formants through the movement of filter bands. Formant movements can also be achieved manually. As with the two vocoders, stereo spread can be precisely tuned, providing enhanced width to processed signals.



AutoFilter

The AutoFilter creates classic, analog-style hardware synthesizer effects. It features a selectable low-pass filter slope (6, 12, 18, or 24 dB), a complete ADSR, and a powerful LFO, with speed modulation on the input signal. As higher resonance values cause the filter to cut the bottom end, signals tend to sound thinner. The Fatness parameter compensates for this audio artifact. The distortion effect on the input and output of the AutoFilter will delight fans of aggressive sounds. The resonance controller invites you to experiment, as self-oscillation is initiated before you max out the parameter.

Fuzz and Wah

The Fuzz and Wah effects—borrowed from the EVD6 Clavinet—are combined in a single plug-in that can be used to process any sound source in the Logic Pro 7 mixer. The Wah effect provides six different filter types that simulate legendary effect pedals such as the Morley or CryBaby. The envelope can be changed and automated onscreen or controlled via MIDI. The distortion of the Fuzz-Wah works on frequencies between 2000Hz and 20,000Hz. Every sonic detail can be controlled with parameters that influence intensity or compression, for example. The AutoGain function guarantees the maximum peak level, without overloads, preventing mix artifacts when extreme settings are used.

Delays

Tape Delay

The Tape Delay recognizes the tempo within Logic Pro. Just click the Sync button and delay repeats will fit to the beat. The Groove slider offers smooth switching between triplet and dotted notes (this corresponds to the Logic Pro 7 Swing parameter). Delay time can be modulated with an LFO as well. Once you've experienced the sounds created by fading the feedback slider to create virtual tape loop saturation, or hear the desired frequency range more clearly with each repetition, you'll know it's time to get rid of your analog tape echo.

Stereo Delay

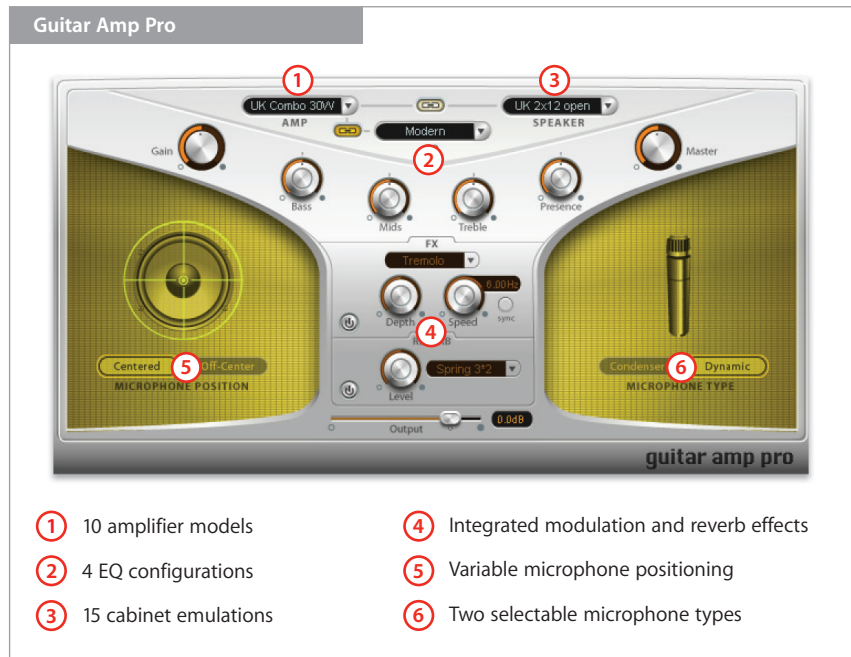
The Stereo Delay offers similar controller features as the Tape Delay, although tape saturation is missing, making it even more processor efficient. The feedback level is separately controllable for each stereo channel and is rounded out with a separately controllable cross-feedback level. As a result, interesting rhythmic structures can be easily created.



Distortion

Guitar Amp Pro

The Guitar Amp Pro effect is specially tailored for the electric guitarist. It provides a faithful re-creation of 10 classic guitar amplifiers and 15 types of cabinets or speakers. Further sonic manipulation is afforded by condenser and dynamic microphone models, an EQ, two classic modulation effects, and a reverb. Connect your guitar directly to your Macintosh to enjoy versatile amplifier sounds, or re-amp your recordings in Logic Pro 7 for additional signal overtones and new tonal colors.



Distortion2

The Distortion2 plug-in is a spin-off of the EVB3 software instrument. It offers three tube amplifier simulations: a Leslie 122, a classic guitar amplifier, and an amplifier with a more aggressive sound character, allowing for drastic distortion effects.

Overdrive and Distortion

Overdrive and Distortion are well-known effects. Move the Drive slider to increase transistor saturation. The Tone knob filters the harmonic-laden distortion signal, resulting in softer tonal characteristics. The difference between the two effects is the softer overmodulation of field-effect transistors (overdrive) in contrast to the harder overmodulation of bipolar transistors (distortion).

BitCrusher

The rough character of low-resolution digital signals can provide a desirable distortion effect. Simulations of the legendary Fairlight CMI, or even the 4-bit sound of the Commodore 64, are just two usage examples for the BitCrusher. This effect adds a precisely measured amount of artificial aliasing to the signal, resulting in effects that resemble a slightly detuned shortwave radio right through to drastic distortion effects.

Clip Distortion

The Clip Distortion plug-in is specially designed for fans of the classic “tube sound” who also like to experiment. On one hand, it offers extreme, nonlinear distortion effects. On the other, it is suitable for authentic re-creations of warm tube amplifier sounds.

Phase Distortion

The Phase Distortion plug-in is based on a modulated delay line, much like the well-known chorus and flanger effects. As opposed to these effects, the delay time is modulated not by a low-frequency oscillator (LFO) but by a low-pass-filtered version of the audio input signal itself, allowing the signal to modulate its own phase position.

Dynamics

Compressor

The development of the Compressor has benefited from intensive analysis of the temporal controller reactions of leading analog compressors. Functions such as a Peak/RMS switch and 10-stage control for soft and hard knee characteristics provide precise control over the dynamic character. The practical AutoGain feature ensures that a normalized input signal results in a normalized output signal—regardless of the threshold and ratio levels.



Expander

The Expander is a genuine “upward expander” with a ratio range of 1:1 to 0.5:1. The dynamics of the signal are maximized above the freely selectable threshold. The remainder of the parameter section is based on the Compressor, including the helpful AutoGain facility. Although this effect is rarely used on a day-to-day basis, it is sometimes indispensable for “refreshing” the dynamic character of a signal.

Noise Gate

In addition to the standard Threshold, Attack, and Release parameters, the Noise Gate offers access to Hold Time and Hysteresis (the difference between open and closed threshold) parameters, preventing the signal from fluttering. With filters available on the sidechain, you can even do voiceovers on underlying tom-tom tracks. The precision afforded by the Lookahead function puts an end to “analog is better than digital” discussions.

Enveloper

One of the most unusual tools among the dynamic effects is the Enveloper. It allows you to shape transients—the attack or release phase—of a sound. This offers possibilities such as adding or removing the punch of percussive signals, sending the drummer to the far end of a natural hall, or erasing an echo in a recording. The enveloper makes it all possible!

De-Esser

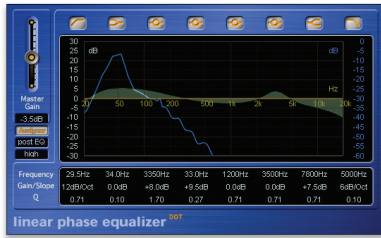
From a purely technical standpoint, the De-Esser is a frequency-dependent compressor. The dynamics of a certain part of the frequency spectrum are compressed using an extreme attack and release time. In practice, the De-Esser is a valuable tool for minimizing or eliminating “hiss” sounds, obviously a critical factor for vocal recordings. It also suppresses “sizzling” frequencies whenever the user-defined threshold level is exceeded. In contrast to the static elimination of hiss with an EQ, which can result in a muffled tonal character, the signal remains vivid and transparent.

Multipressor

The Multipressor is a powerful mastering tool that allows you to independently control compression on up to four frequency bands. The outstanding Lookahead function reacts to level peaks even before they have been processed, enabling unmatched precision.

Limiter

The Limiter is one of the standard processes used on summed stereo signals for mastering. The limiting level is based on a user-defined compression ratio, which usually kicks in at higher threshold levels.



EQ

Linear Phase EQ

Housing the same eight-band layout as the Channel EQ, the new Linear Phase EQ preserves the phase of the audio signal—even when applying drastic EQ curves. The Linear Phase EQ is far more processor intensive than the Channel EQ, making it best suited to mixdown situations.

Channel EQ

The Channel EQ is the standard EQ in Logic Pro 7. Perfect equalization has never been so easy, intuitive, precise, and efficient. The Channel EQ seamlessly unites two tools in one plug-in. In addition, it is possible to see a thumbnail view of the Channel EQ displayed in the upper corner of a channel strip.

The comprehensive FFT analyzer offers the ultimate overview when mixing. It provides a real-time visual map of the inserted signal over the entire frequency spectrum, making any audible changes in the sound immediately visible.

The main strength of the Channel EQ, however, is its outstanding sound quality. Tight, heavy bass, clearly defined treble, and tonal transparency will impress the most critical of listeners. In contrast to the Fat EQ, the frequency resolution and enhanced flexibility of the Channel EQ have been markedly improved. Its eight bands allow for more precise EQ control over the finest sonic details. The individual bands operate in the following ways: high-pass filter, low shelving EQ, four peaking EQs, high shelving EQ, and low-pass filter. All bands are fully parametric. Although it is a highly precise mixing tool, the Channel EQ offers a darker side: The two resonant filters feature a maximum slope parameter of 48 dB, allowing you to make drastic sound changes and create radical effects and filter sweeps whenever you want some “bite” in your sound.

While using the Channel EQ, you’ll quickly realize that it places modest demands on processor resources. It uses 30 percent less processing power than its predecessor, the Fat EQ. With its seamless integration in the Logic mixer and extensive support by various professional controller surfaces, you’ll soon find that nothing less than the Channel EQ will do.

Match EQ

The Match EQ is able to copy and paste the frequency spectrum from one channel to another. It can also learn the frequency spectrum of a reference signal and apply it to another signal. This makes applying the sonic characteristics of one audio file to another easy, creating a consistent tonal color across files or songs.

Modulation

Ringshifter

The Ringshifter adds an exotic option to your effects arsenal—offering ring modulation or phase shifting in a stylish interface. The ring modulator modulates the incoming signal by adding a second signal from an oscillator or another audio signal from a sidechain. The effect output signal equals the sum and difference of the frequency content of the two signals. Frequency shifting alters the frequency relationships of the original harmonics. Both effects offer drastic sonic results, ranging from metallic artifacts to robot voices or strange phasing effects. An envelope follower, LFO, and delay enhance the capabilities of the Ringshifter, making it a great tool for sonic experimentation.



Modulation Delay

The Modulation Delay could have been named “Hyper Flanger and SuperChorus,” as it allows you to smoothly slide between these effects. In contrast to a simple chorus or flanger, two mixable LFOs modulate delay time (or amplitude). The innovative Anti Pitch button ensures that the pitch of the modulated signal remains constant, and Constant Mod guarantees a constant modulation depth—regardless of the LFO frequencies. Phase relationships of the modulation are independently controllable on each channel.

Phaser

The sound of the Phaser is unsurpassed even by the most expensive analog devices. The concept of mixable LFOs, taken from the Modulation Delay, is extended by level-dependent frequency modulation of LFO 1. You can determine the modulation width and range by defining the limits of the modulation with highest (Sweep Ceiling) and lowest (Sweep Floor) values. The Stereo Phase knob is used to define the phase for the left and right channels. The Color slider is used to add further intensity to the effect.

Tremolo

The Tremolo modulates the signal's amplitude cyclically, producing repeated variations in volume within a selected frequency range. Symmetry controls the relationship between the quietest and loudest phases. Smoothing influences the character of the volume change. In contrast to the Vibrato effect, Tremolo doesn't affect the pitch of the signal.

Ensemble

The Ensemble effect provides a rich, smooth “chorus” sound and is useful on pads, guitars, and other material. It generates up to eight additional “voices,” modulated by three separately adjustable generators. The modulation phase between the different voices is controllable (or random, if desired), and the stereo base can be changed, allowing the resulting output to match the needs of the mix.

Rotor Cabinet

The special sound produced by the legendary Leslie rotating loudspeaker cabinet is authentically reproduced by the Rotor Cabinet plug-in. In modeling the effect algorithm, details such as stereo microphone positioning and various cabinet sizes, shapes, and materials were taken into account. Several modes are available for control of the rotation speed.

Spreader

The Spreader plug-in widens the stereo spectrum with an effect that is quite similar to a chorus. The frequency range of the original signal is periodically shifted in a nonlinear way. In contrast to Stereo Spread, the perceived pitch changes.

Scanner Vibrato

The Scanner Vibrato effect plug-in simulates the scanner vibrato section of the legendary B3 organ. It is based on an analog delay line, consisting of a chain of delayed low-pass filter elements. This unique effect can't be simulated with conventional LFOs. The Scanner Vibrato emulates this extraordinary effect and provides control over speed and chorus amount.

Special and Helper Plug-ins

Vocal Transformer

Change a vocal track into bird chirps or a robot voice with the Vocal Transformer. This plug-in changes the pitch and/or formants of a vocal track, without affecting the other. The simple interface belies the sensational and extremely impressive sonic results that are possible with this plug-in.



Pitch Shifter

The Pitch Shifter detunes the signal in semitones and cents (1/100 of a semitone step). Three algorithms (Drums, Speech, Vocals) are optimized for different source material. Selecting Drums leaves the groove of the original track intact. Vocals is well-suited for any signals that are inherently harmonic or melodic. Speech, a mixture of the two, is useful for complex signals such as spoken-word performances.

Spectral Gate

The Spectral Gate makes different parts of the signal separately audible in a user-definable frequency range, above (Super Energy) and under (Sub Energy) the threshold level. This effect will surprise you with its unusual sonic results. Isolated monitoring of the Super Energy signal could be described as vocoder-like. The original signal—outside the defined frequency band—can be added to the mix: Low Level blends in the frequencies that lie below the frequency band, and High Level, the frequencies that lie above the defined frequency band. The Spectral Gate is a treasure trove for all creative sound explorers.

SubBass

The SubBass plug-in increases the frequency spectrum of the signal with tones that are lower than the original sound. One simple use of the SubBass is as a classic Octaver. Because the bass signals generated by the SubBass are derived from two selectable frequency ranges in the original signal, the effect is also suitable for use on complex summed signals.

Denoiser

The Denoiser cleans up your recordings by separating the desired signal from the noise floor. No matter whether it is high blue or dark pink, the noise level of any audio source can be dramatically reduced, while retaining the highest possible dynamic level.

Exciter

The Exciter adds high-frequency components to the input signal. The effect can be described as a nonlinear distortion. In contrast to Overdrive and Distortion effects, the harmonics generator is fed by a high-pass-filtered version of the input signal.

Stereo Spread

The Stereo Spread plug-in is extremely useful, particularly when mastering. It extends the stereo base by alternately distributing a selected number of frequency bands, from the middle frequency range to the left and right channels. This plug-in is suitable for adding a stereo effect to monaural recordings, without the usual “alien” artifacts associated with the process.

Multimeter

The Multimeter houses a 1/3-octave Analyzer, a Goniometer, a Correlation Meter, and a Level Meter. It provides precise visual feedback on various aspects of the audio signal, making it an invaluable tool for fine-tuning and analysis of the sound.

Who Uses Logic Pro 7?

Tailored to the needs of both creative artists and technicians, Logic Pro 7 fits every part of the music creation workflow—from the first note to the final polished product. Musicians, engineers, and producers benefit equally from the power, flexibility, portability, pristine sound quality, and dependability of the virtual studio provided by Logic Pro 7.

Logic Pro 7 suits every Macintosh-based, professional studio, including those that make use of DAE/TDM hardware. Logic Pro 7 is compliant with a number of industry standards and supports a multitude of file formats, making it easy for Logic users to meet the needs of clients or other artists, and guaranteeing the easy integration of projects from other sources into the digital workflow.

Remixers, Electronic and Dance Producers

Beats are the most important elements of this genre. The software of choice for this group of users must provide an intuitive and straightforward way to create and vary drum loops. Beyond beats, the genre tends toward synthetic sounds that can range from classic analog synthesizer sounds to a digital or lo-fi aesthetic. Further modification, rearrangement, and manipulation of audio recordings in real time, with effect plug-ins, is an important part of the production process.

The Ultrabeat plug-in in Logic Pro 7 is a virtual incarnation of the very best that beat boxes have to offer. It provides a tremendously flexible synthesis engine combined with a range of effects that no dedicated percussion synthesizer can match. Ultrabeat takes its lead from the hardware drum machines of the '80s and later, offering a fully featured step sequencer that allows the intuitive creation of drum loops and precise control over multiple parameters.

The highly acclaimed range of software synthesizers in Logic Pro 7 covers all areas of sound generation, including frequency modulation and component modeling. Hundreds of presets act as starting points for your music and as a basis for deeper excursions into sound creation. Further sonic manipulation is afforded by the collection of over 70 real-time effect plug-ins: The Ringshifter offers both pitch shifting and ring modulation for that retro sound; the Vocal Transformer and Pitch Correction plug-ins provide the tools for drastic changes or slight corrections to voice recordings; distortion effects such as the BitCrusher or classic delays such as those provided by the Tape Delay are also wildly popular in the field of electronic music.

Film/TV and Multimedia Composers

Composers of TV, movie, and multimedia soundtracks need to match visual action with music. To accomplish this, they not only depend on perfect synchronization of visuals and music, but also require flexible sound design options and quick access to extensive sound libraries. Often the sound of a real orchestra is required, and comprehensive notation functionality is needed to communicate ideas to musicians. Because composers generally work under intense deadline pressures, they need a reliable partner with an ergonomic interface for fast and precise handling. For all of these needs, the perfect choice is Logic Pro 7.

Logic Pro 7 handles QuickTime movies seamlessly in the Global Tracks—providing a clear overview of the composition and affording direct access to global song parameters. Apple Loops offer outstanding pitch- and time-stretching flexibility, making them an extremely productive alternative to other audio file types. The Sculpture component modeling synthesizer is ideal for the creation of winning, natural-sounding atmospheres. Another outstanding tool for sound generation is the EXS24 sampler. Its straightforward interface has made it incredibly popular and an industry standard. The EXS24 even offers special tools for the Vienna Symphonic Library.

Based on the success of its predecessor “Notator,” Logic Pro 7 houses a full-featured notation system that allows the production of any type of score. Even complex multi-instrument arrangements are possible, making the communication of musical ideas a breeze.

Songwriters

Songwriters need an inspiring partner and playable instruments that provide the flexibility to nurture new musical ideas. The focus of the songwriter is creativity, which should not be obstructed by technical issues. The rich palette of sounds and loops in Logic Pro 7 provides a springboard for developing new material. For guitarists, Logic even replaces several guitar amplifiers, bringing faithful guitar sound re-creations to the laptop. Finally, adding musicians to the process is simple, thanks to the advanced notation abilities. When your ideas are ready for recording, Logic provides the tools to record, edit, and mix professionally.

Audio Engineers

The responsibility of audio engineers working in music and post-production facilities is to guarantee optimum sound. They polish and perform slight corrections to make a recording a sonic experience, rather than just music. This requires a well-educated ear and solid technical understanding. They often work with huge files and intuitively control a multitude of parameters, which for best results should be right at the engineer’s fingertips.

The inclusion of distributed audio processing in Logic Pro 7 provides the power needed for instant access to all tracks and parameters simultaneously, even when working with the most demanding arrangements. Logic provides an array of mastering plug-ins for the most exacting interventions in the overall sound, including analysis tools for precise visual reference. The Arrange provides several modes that accelerate the editing process and make track mixer configuration faster. In addition, mixing in Logic can be a truly hands-on experience, thanks to its comprehensive support of control surfaces.

Performing Artists and DJs

Performing artists consider reliability the number one priority when using an instrument or other tool live on stage. They also require high levels of customizability and control. The better the software is able to meet the needs of the individual, the more intuitive the performance and the higher the artist's level of expression. Finally, portability of the technical setup makes touring simpler and reduces production costs.

The extraordinary performance and reliability of Logic Pro 7 is supported by the high-priority access it receives from the operating system. Logic itself features a number of processor-specific optimizations for all G4- and G5-based Macintosh computers. This translates to more processing resources, ensuring system stability, low latency, and optimal performance of both audio and MIDI devices. All this is courtesy of the seamless integration of these processes in the native MIDI and Core Audio services of Mac OS X. In addition, all Audio Units instrument and effect plug-ins are tested when Logic opens, ensuring that third-party plug-ins do not compromise system stability or performance.

Controlling Logic is easy with the support of passive controller hardware. These fader or knob boxes are available in a wide variety of configurations and are now much easier to configure for control of the Logic mixer and plug-ins. The comprehensive software instrument collection enables musicians (especially keyboard players) to choose from a virtual truckload of vintage keyboards and impressive synthesizers.

DJs, in particular, will love the ability of Logic Pro 7 to tempo-sync with an incoming audio signal. Add your own drum loops—from Ultrabeat, for example—to your DJ set or apply studio-quality effects to a signal. Logic lets you spice up your set with your own flavor.

Technical Specifications

Specifications

Powerful audio production

- Network-distributed audio processing to expand power for software instruments and effects
- Track Freeze to extend processing capability for a single computer
- High-end POW-r dithering algorithm
- Audio resolution up to 24-bit/192kHz
- Shuffle and Auto-Crossfade Arrange Edit modes

Award-winning instruments and effects

- 34 software instruments, including Sculpture; Ultrabeat; EVP88, EVB3, and EVD6 vintage instruments; and ES1, ES2, EFM1, ESM, ESP, and ESE synthesizers
- EXS24 mk II sampler with comprehensive sampler instrument library
- Over 70 effect plug-ins, including Guitar Amp Pro, Ringshifter, Linear Phase EQ, Match EQ, Vocal Transformer, EVOC20 Vocoder, Space Designer convolution reverb, and Pitch Correction

Professional mixing and automation

- Adaptive track mixer for display of selected channels
- Save/Load channel strip instrument and plug-in configurations
- Sample-accurate, track-based 32-bit automation
- Extensive Channel group functions (mix and edit)
- Up to 255 stereo tracks
- 128 software instrument tracks
- 64 buses, 64 auxiliary channels
- 15 inserts, 8 sends per channel
- Support for multiple surround formats, including 5.1 and 7.1
- Comprehensive hardware controller support

Advanced MIDI sequencing

- Matrix, Event List, Hyper, Score, and Transform MIDI edit windows
- Layout and printing of complete professional scores
- Caps Lock conversion of computer keys into musical keyboard

Comprehensive control

- More than 800 definable key and MIDI commands
- 90 recallable screen configurations with interactive edit windows
- Project Manager for powerful control of assets
- Setup Assistant for easy system configuration
- Fast, offline bouncing of single or multiple tracks
- Tempo, Signature, Chord, Transpose, Beat-Mapping, and Video Tracks

Extensive compatibility

- Support for Apple Loops (over 1000 Apple Loops included)
- Audio Units plug-in support
- GarageBand song file import
- Final Cut/XML, AAF, OMF, and Open TL file import and export
- AAC and MP3 import and export
- Support for Pro Tools HD hardware and TDM plug-ins*
- Simultaneous use of host and TDM-based audio engines*
- Full integration with Reason, Live, and other Rewire-compatible applications
- Optimized for PowerPC G4 and G5 processors

System Requirements

- Macintosh computer with PowerPC G4 or faster processor (G5 or dual G4 processors recommended) and 512MB of RAM; Logic Node applications require PowerPC G5 and Gigabit Ethernet connectivity
- Mac OS X v10.3 or later
- 4GB of available hard drive space
- DVD drive for software installation
- Available USB port for XKey (copy protection)
- Low-latency multi-I/O audio hardware and MIDI interface recommended

For More Information

For more information about Logic Pro 7 and other Apple audio solutions, visit www.apple.com/pro/audio.

*Additional system requirements may apply when using Digidesign's TDM systems.

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