Tips for Using Jam Pack 4: Symphony Orchestra Instruments

Jam Pack 4: Symphony Orchestra contains over 30 new Software Instruments featuring the sounds of the orchestra. You can use the instruments in Symphony Orchestra to add solo performances, chamber ensembles, or an entire orchestra to your songs.

This document contains the following information about using the instruments included in Symphony Orchestra:

Introducing the Symphony Orchestra Instruments

Symphony Orchestra gives you a complete set of orchestral instruments that you can use in your songs. You can create classical orchestrations or add a touch of sophistication to songs in any style, from modern rock to pop ballads to hip-hop jams.

There are four basic groups of instruments that make up a symphony orchestra:

- Strings
- Woodwinds
- Brass
- Percussion

The instruments in each group can take center stage to capture the audience's attention, or can provide a supportive role while instruments of another group take the lead. Additional instruments, including piano, organ, and harpsichord, can be used to add their particular color and character to the orchestra.

In the Symphony Orchestra Jam Pack, the instruments appear in the following categories:

- Strings: First and second violin sections, viola section, cello section, and a concert harp.
- Bass: Bass string section and a deep bass synthesizer.
- Woodwinds: Piccolo, flutes, oboes, English horn, clarinets, and bassoon; most with both solo and section instruments.
- Horns: French horns (both solo and section), trumpet section, trombone section, and tuba.
- Organs: Baroque, church, flute, and wedding organs.
- Pianos and Keyboards: Steinway grand piano and harpsichord.
- Tuned Percussion: Timpani, xylophone, marimba, celesta, glockenspiel, and other percussion.
- Drum Kits: An "Orchestra Kit" which features a wide variety of unpitched percussion, including bass and snare drum, cymbals, triangle, gong, and more.

Strings

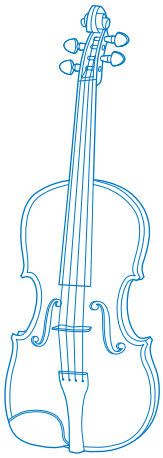
Symphony Orchestra features individual string sections, a mixed string ensemble, and a concert harp.

- Orchestra Violin Section 1
- Orchestra Violin Section 2
- Orchestra Viola Section
- Orchestra Cello Section
- Orchestra String Ensemble
- Orchestra Harp

The strings are the foundation or "backbone" of most symphonic music. Each string section can play its own individual part, or they can all blend together to create a unified voice. The strings are capable of a wide variety of sounds, and the string instruments included in Symphony Orchestra give you several string articulations to use in your songs, including legato, staccato, pizzicato, tremolo, and trills. For more information, see "Playing the Symphony Orchestra Instruments" on page 16.

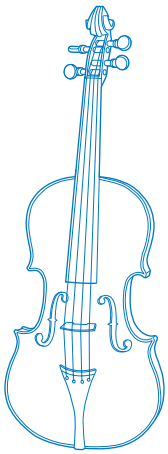
Each of the instruments in the string ensemble has four strings, tuned in fifths (except for the bass, as described in the section "Bass" on page 4). Notes are played on the fingerboard with the player's left hand while their right hand draws the bow across the strings.

Orchestra Violins 1 & 2



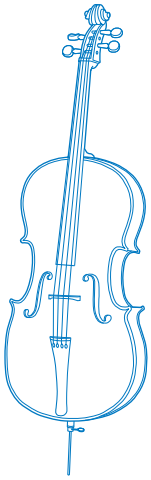
The violin is the leader of the string ensemble, the smallest and lightest of the strings. The violin descended from earlier instruments (including the medieval fiddle and rebec) during the sixteenth century. The violin can play singing melodies, chords, or scale runs, and cover an almost limitless range of emotional expression. The open strings of the violin are tuned to the notes G3 - D4 - A5 - E6.

Orchestra Viola



The viola is similar in shape to the violin but larger, producing a richer and mellower tone. The middle voice of the string ensemble, it can play either a melodic or an accompanying role. The strings are tuned a perfect fifth lower than the violin, to the notes C3 - G3 - D4 - A5.

Orchestra Cello

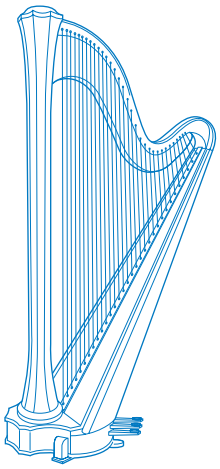


The violoncello, known simply as the "cello", is similar in general shape to the violin and viola but is much larger, and is played upright due to its greater size and weight. Its tone is thick and dark in its lowest octave, becoming rich and singing in the higher register. The open strings are tuned one octave lower than the viola, to the notes C2 - G2 - D3 - A4.

Orchestra String Ensemble

The Orchestra String Ensemble lets you play all the strings together as a single instrument, which lets you easily play across the entire keyboard range and can be used for sketching string parts. The different string sections are arranged across the notes of the keyboard from top to bottom.

Orchestra Harp



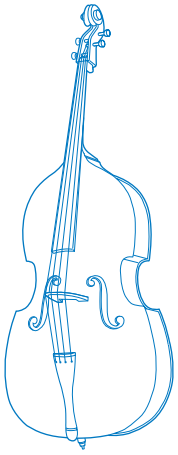
In addition to the bowed strings, Symphony Orchestra includes a concert harp. The characteristic sound of the harp, produced by plucking the strings, is frequently used in Romantic music for gentler moments, or to create a sense of fantasy.

Bass

Symphony Orchestra features a string bass section and a "deep bass" synthesizer.

- Orchestra Bass Section
- Orchestra Deep Bass

Orchestra Bass



The bass section instrument provides the low end of the string ensemble. In Classical orchestral music, basses typically double the cellos an octave below, while in modern compositions they often play a more independent role. The strings are tuned to the notes E1 - A1 - D2 - G2.

Orchestra Deep Bass

The deep bass instrument is a special synthesizer similar to the one used in Hollywood film scores to add greater depth and power to full orchestral passages.

Woodwinds

Symphony Orchestra features a full set of orchestral woodwinds, including both solo and section instruments.

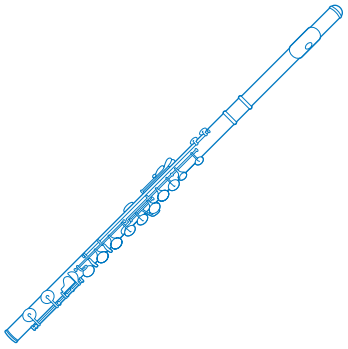
- Orchestra Piccolo Flute
- Orchestra Flute
- Orchestra Flute Section
- Orchestra Oboe
- Orchestra English Horn
- Orchestra Clarinet
- Orchestra Clarinet Section
- Orchestra Bassoon

Each woodwind instrument has a unique sound and character, and traditionally the woodwinds are used either as solo instruments (like "lead actors" in front of a background, usually provided by the strings), or to strengthen the overall sound of the orchestra. You can use the woodwind instruments in Symphony Orchestra in both roles. Each instrument has both legato and staccato playing styles, and some solo instruments also include both vibrato and non-vibrato versions. For more information, see "Playing the Symphony Orchestra Instruments" on page 16.

Orchestra Piccolo Flute

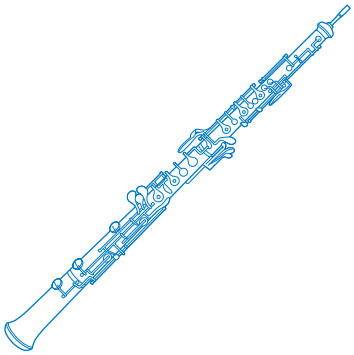
The word *piccolo* means small, and the piccolo flute is a smaller relative of the flute, pitched an octave higher. Originally used in military bands, it produces a very bright sound that can easily be heard in almost any orchestral texture.

Orchestra Flute



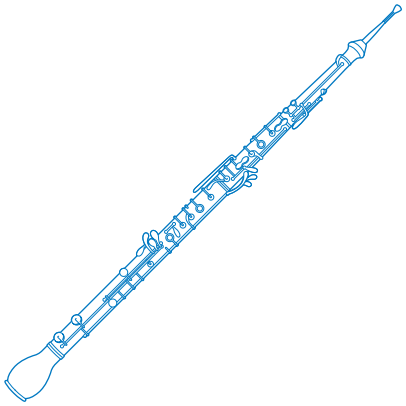
The flute is one of the oldest instruments in the history of music. The modern concert flute (also called the transverse flute) developed from earlier versions, including the fife, during the Baroque era, and has been a member of the symphony orchestra since the early Classical period. It is played by blowing air through a mouthpiece at one end while fingering the keys along the body to produce different notes. The sound is thick and breathy in its lowest register, becoming very bright in the higher octaves.

Orchestra Oboe



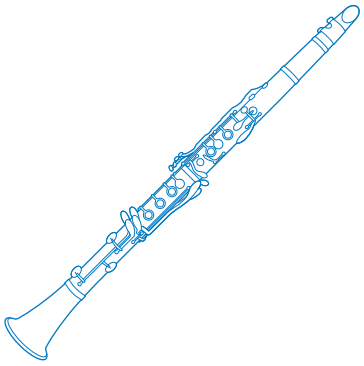
The oboe belongs to the family of instruments known as double reeds, which also includes the English horn and bassoon. It is descended from one of the oldest known types of musical instrument, being used in Sumeria and ancient Egypt. The sound is produced by blowing air through the double reed (a reed is a thin piece of wood that's fixed at one end and can vibrate freely at the other) at the top of the instrument, while fingering notes along the body of the instrument. The tone is dry and somewhat nasal in quality, conjuring up pastoral images of a shepherd's pipe.

Orchestra English Horn



The English horn, which is neither English in descent or truly a horn, is a larger cousin to the oboe. It is pitched a fifth (seven semitones) lower, and produces a softer, mellower tone. It was introduced into symphonic music by Beethoven, and became a standard member of the orchestra during the Romantic period.

Orchestra Clarinet



Unlike the oboe and English horn, the clarinet has a single reed, and produces a richer, smoother tone. The tone of the clarinet varies over the wide range of the instrument, and has been used to express a wide range of emotions, from serene love to violent rage to ironic humor. The clarinet became a member of the orchestra later in the Classical era. Mozart composed a famous concerto for solo clarinet, and used the instrument prominently in several of his later symphonies.

Orchestra Bassoon

The bass instrument of the woodwind family, the bassoon is a double reed, like the oboe, but is placed upright on the floor due to its larger size. The sound of the bassoon is consistent throughout the instrument's range. The bassoon has a wide dynamic range, and is used for both lyric melodies and comic effects; it blends well with the French horns and is commonly used together with them.

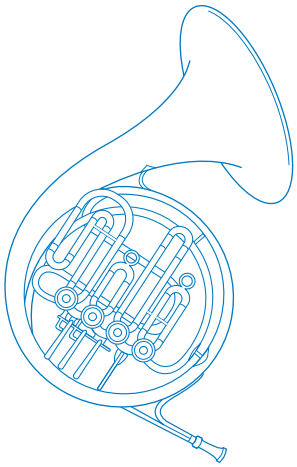
Horns

Symphony Orchestra features a full set of orchestral brass instruments or "horns", including both solo and section instruments.

- Orchestra French Horn Section
- Orchestra Trumpet Section
- Orchestra Trombone Section
- Orchestra Tuba
- Orchestra Brass Ensemble

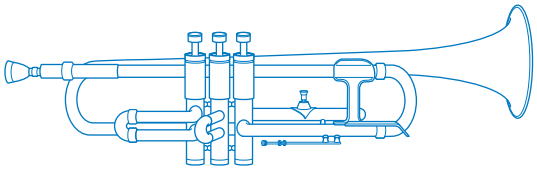
Like the woodwinds, orchestral brass are most often used either as solo instruments (particularly the French horns) or to add volume and power to climaxes and other full orchestral passages (sometimes called "tutti", meaning "all"). The Symphony Orchestra brass instruments include both solo and section versions, and each instrument gives you both legato and staccato playing styles. In addition, the Orchestra French Horn Section also includes notes with crescendos, which you can use for moments of high drama. For more information, see "Playing the Symphony Orchestra Instruments" on page 16.

Orchestra French Horn



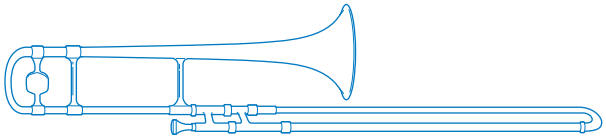
The French horn (also called "Horn in F" or just "Horn") is descended from the hunting horn. While earlier horns could only produce notes in one key, valves attached to the coiled tubing of the French horn enable it to produce all the notes of the chromatic scale. Horns were the earliest brass instruments to be used in symphonic music, and have been a part of the orchestra since Haydn's early symphonies. Mozart wrote four concertos for horn and orchestra.

Orchestra Trumpet



The modern trumpet evolved from earlier instruments such as the "natural trumpet" in the early nineteenth century. After attempts were made to extend the instrument's range by means of crooks and slides, valves were added, allowing the trumpet to play in any key. The trumpet's cup-shaped mouthpiece and cylindrical tubing give it a more brilliant tone than the French horn.

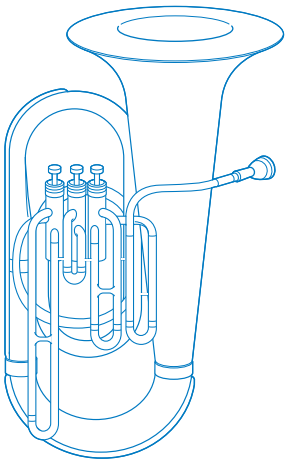
Orchestra Trombone



The trombone, which descended from earlier instruments including the sackbut, is similar in construction to the trumpet but uses a slide rather than valves to produce different notes. Its tone is deeper and less brilliant-sounding.

Mozart used trombones in his operas *Don Giovanni* and *The Magic Flute*, and Beethoven introduced the trombone into symphonic music in his *Fifth Symphony*. The ability to slide from one note to another has been used by composers for both comic and frightening effects.

Orchestra Tuba



The tuba is the bass member of the brass instrument family. There are several different types of tuba, including the euphonium, Sousaphone, and Wagner tuba, each with a distinctive tone. In general, tubas have a mellower, softer tone than the other horns.

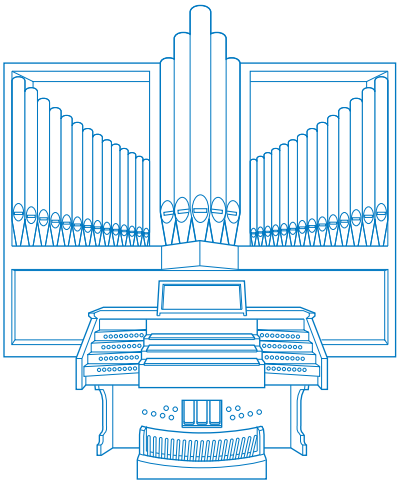
Orchestra Brass Ensemble

The Orchestra Brass Ensemble lets you play the all the horns together as a single instrument, which makes it easy to play across the entire range of the keyboard. The different horn sections are arranged across the notes of the keyboard from top to bottom.

Organs

Symphony Orchestra includes four pipe organs (or "church organs") to use in your songs.

- Orchestra Baroque Organ
- Orchestra Cathedral Organ
- Orchestra Flute Organ
- Orchestra Wedding Organ



The organ's history reaches back to the first century A.D., making it the oldest of all keyboard instruments. Unlike the piano and harpsichord, the sound of the organ is produced by pumping air through pipes of different lengths, which determine both the note and the tone color. While notes on the piano and harpsichord quickly fall away to silence, the organ is capable of sustaining notes and chords almost indefinitely.

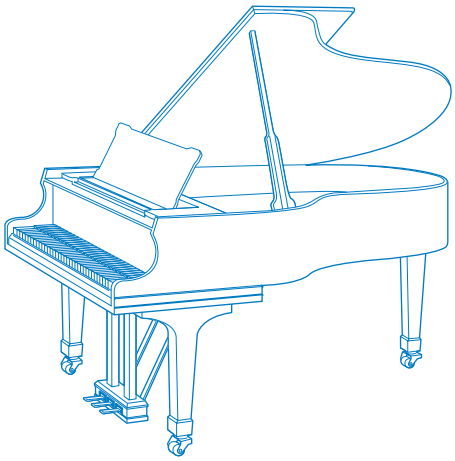
The organ can produce a variety of tones, and the four organs included in Symphony Orchestra include a special control in the Track Info window that lets you choose different organ stops. Each organ provides a unique tone color.

Pianos and Keyboards

Symphony Orchestra includes a Steinway grand piano and a harpsichord that you can use to add color and variety to your orchestrations.

- Orchestra Steinway Piano
- Orchestra Harpsichord

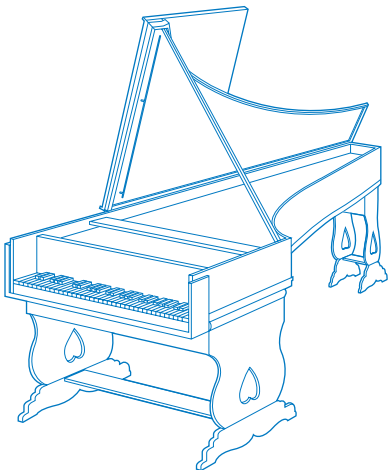
Orchestra Steinway Piano



The Steinway name has been associated with the finest concert pianos for over a century. The sound and action of a Steinway & Sons grand piano has made it the choice of many top classical pianists.

The Orchestra Steinway Piano instrument includes a wide range of dynamic levels and lets you sustain notes by adding pedal markings using the new notation feature in GarageBand. It can be used either as a solo instrument with the orchestra, or to add its unique and recognizable tone color and texture to the overall sound.

Orchestra Harpsichord



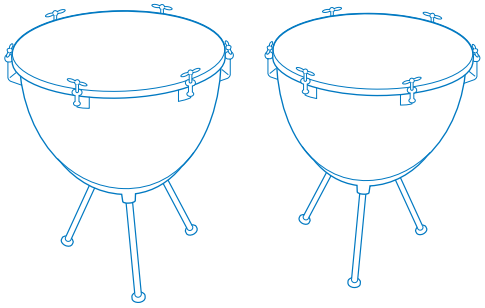
The harpsichord is a keyboard instrument that predates the piano, and its dry sound is characteristic of Baroque music. Unlike the piano, in which metal strings are struck by hammers, the strings of the harpsichord are plucked by quills, giving a much lighter sound. The harpsichord was used extensively by composers such as Handel and Vivaldi, and Bach composed several concertos for the instrument.

Tuned Percussion

Symphony Orchestra includes all the common tuned percussion instruments used in symphonic music.

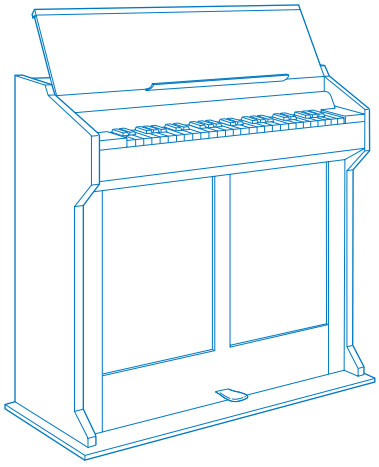
- Orchestra Timpani
- Orchestra Celesta
- Orchestra Glockenspiel
- Orchestra Tubular Bells
- Orchestra Xylophone
- Orchestra Marimba
- Orchestra Crotales

Orchestra Timpani



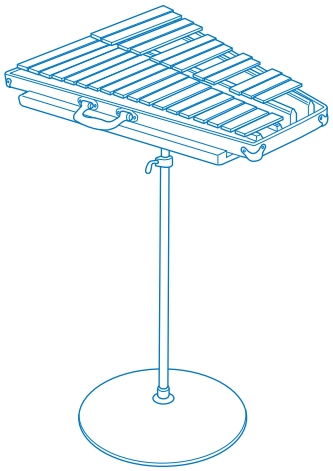
Timpani, also known as "kettledrums", are the most frequently used percussion instrument in symphonic music. They consist of a large bowl-shaped body made of copper or brass over which a head is stretched. The head is struck with soft- or hard-tipped mallets, one held in each hand. The pitch of the timpani can be adjusted with screws around the edges of the head, and some timpani also have pedals for adjusting the pitch. In symphonic music, timpani are often used to underscore moments of climax or tension.

Orchestra Celesta



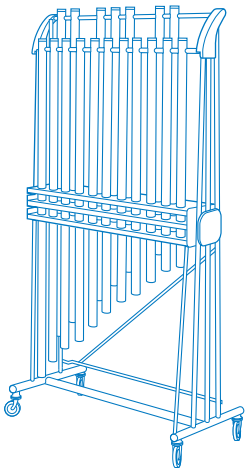
The celesta looks similar to a small piano, but with steel bars instead of strings. Its sound is light and bell-like. It is often used for light or fantastic effects, and was notably used by Bartok in the *Music for Strings, Percussion, and Celesta*.

Orchestra Glockenspiel



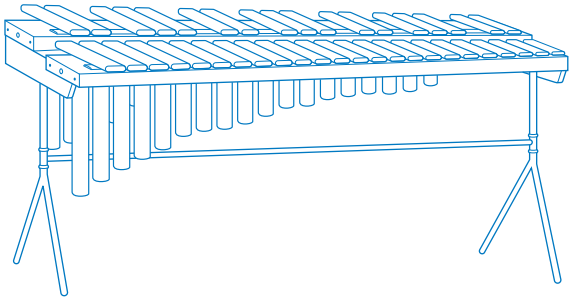
Glockenspiel also have bars arranged like the keys of a piano, but the instrument is smaller than either the xylophone or marimba. The bars are struck with mallets made of rubber or brass, producing a bright, penetrating tone. The glockenspiel was famously used by Tchaikovsky in the "Chinese Dance" of the *Nutcracker* ballet.

Orchestra Tubular Bells



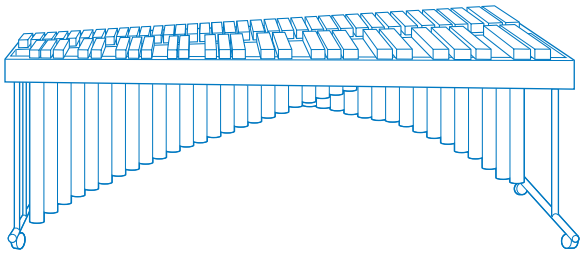
Tubular bells are easily identified as one of the tallest instruments in the orchestra. Held upright in a metal cage, the tubular bells can be six feet tall or more. They are often used to recreate the sound of church bells, as in Tchaikovsky's *1812 Overture* and Mahler's *Second Symphony*.

Orchestra Xylophone



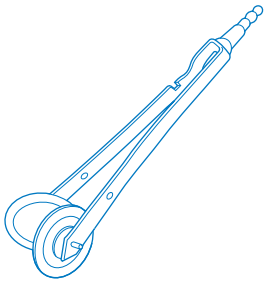
The xylophone has bars of wood or metal that are arranged horizontally like a piano keyboard. The bars are typically struck with hard mallets, producing a dry and woody tone which dies away quickly. In the *Danse Macabre*, Saint-Saens uses the brittle sound of the xylophone to suggest skeletons dancing.

Orchestra Marimba



Originally coming from Africa and South America, the marimba is similar to the xylophone but has a warmer, mellower tone. It is played with rubber- or felt-tipped mallets, and is sometimes played by several players at once.

Orchestra Crotales



Crotales are small paired cymbals that sound a definite pitch. They are a somewhat exotic instrument in the orchestra, used occasionally by composers such as Debussy and Ravel.

Drum Kits

Symphony Orchestra includes an Orchestra Kit featuring a full set of orchestral percussion.

The Orchestral Kit includes a wide variety of unpitched percussion sounds, with each note on the keyboard producing a different sound. In addition to all the commonly used percussion, such as bass and snare drums, cymbals, and gongs, the Orchestra Kit includes many exotic and unusual instruments, such as Taiko drums, an anvil, and a whip.

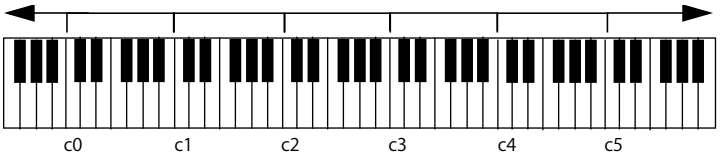
Organization of Orchestral Kit Sounds

The Orchestra Kit is organized across the keyboard in the following order:

Note range	Instrument
A–1 to D#0	Kick drums
E0-F0	Knocks
F#0-G0	Toms
G#0	Large China cymbal
A0	Snare drum roll
A#0	Splash cymbal
B0-C1	Bass drum (“Grand casa”)
C#1-E1	Snare drums
F1	Large Roto tom
F#1	Cymbal hit
G1	Medium Roto tom
G#1	Cymbal roll
A1	Small Roto tom
A#1	Cymbal roll crescendo
B1	Large Taiko drum
C2	Medium Taiko drum
C#2	Cymbal crash
D2	Small Taiko drum
D#2-E2	Sleigh bells
F2-F#2	Tambourine
G2-A2	Tam-tam
A#2-B2	Ratchet
C3-E3	Woodblock
F3-G#3	Wind chimes
A3-C4	Chinese gong
C#4-D4	Guiro
D#4	Claves
E4	Slit drum
F4	Anvil
F#4	Whip
G4-A4	Triangle
A#4	Shaker

Note range	Instrument
B4-C5	Bell tree
C#5-D#5	Castanets
E5-G#5	Tin toms
A5-B5	Metal claps
C6-D#6	Tambo claps
E6-F6	Tin kicks
F#6-G6	Small metal
G#6	Orchestra hit

The following diagram gives a reference of the range of the keyboard.



Note: On most smaller music keyboards, you can access higher and lower octaves using the keyboard's octave up and octave down controls. See the instructions that came with your keyboard.

Playing the Symphony Orchestra Instruments

In order to help you create realistic-sounding performances, the Symphony Orchestra instruments give you a consistent and intuitive set of performance controls. You can control attack, dynamics, expression (volume), and articulation in real time as you play, using note velocity, the mod wheel, and the pitch bend wheel, then fine tune your performances in the GarageBand editor.

You can also play Symphony Orchestra Instruments using the new Musical Typing feature in GarageBand, which lets you control velocity, mod wheel, and pitch bend changes as you play notes on your computer keyboard. For more information about Musical Typing, see GarageBand Help and the GarageBand Getting Started PDF.

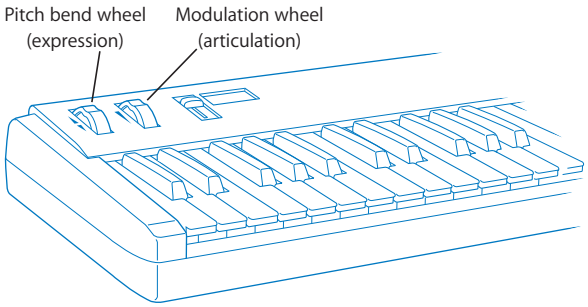
Velocity

One of the marks of a virtuoso performer is the way they use differences in attack and dynamics to add life to a performance. Many of the Symphony Orchestra instruments give you control over the attack and volume of notes using note velocity. By pressing the keys of your music keyboard softer or harder, you can hear these different variations in the notes you play.

Expression

Symphonic music often makes use of changes in dynamics (from soft to loud and vice versa) to add feeling and drama. You can perform these changes with the string, wind, and brass instruments in Symphony Orchestra, even making a sustained (held) note louder (called *crescendo*) or softer (called *diminuendo*).

To record changes in expression, use the pitch bend wheel on a keyboard controller as you play (or use the Pitchbend control in the Musical Typing window). In the editor, you can edit expression by choosing Expression from the display pop-up menu.



Articulation

Each orchestral instrument can produce a variety of sounds depending on how it is played. On the violins and other bowed strings, for example, notes can be played long (legato) or short (staccato), or can be plucked rather than bowed (pizzicato), each producing a unique sound. Notes can also be trilled (moving quickly between two adjacent notes) or tremolo (quickly repeating the same note).

To record changes in articulation, use the mod wheel on a keyboard controller as you play (or use the Modulation control in the Musical Typing window). In the editor, you can edit expression by choosing Foot Control from the display pop-up menu.

The following tables show the different articulations available for each instrument.

Strings

Instrument	Articulations
Orchestra Violin 1 Section Orchestra Violin 2 Section Orchestra Viola Section Orchestra Cello Section Orchestra Bass Section	legato: 0-9
	staccato: 10-36
	tremolo: 37-63
	half-step trills: 64-90
	whole-step trills: 91-117
	pizzicato: 118-127
Orchestra Harp	single articulation

Bass

Instrument	Articulations
Orchestra Deep Bass	single articulation

Woodwinds

Instrument	Articulations
Orchestra Piccolo Flute Orchestra Flute	legato: 0-63
	staccato: 64-127
Orchestra Flute Section	legato: 0-63
	staccato: 64-127
Orchestra Oboe	legato, non-vibrato: 0-39
	legato with vibrato: 40-87
	staccato: 88-127
Orchestra English Horn	legato: 0-63
	staccato: 64-127
Orchestra Clarinet	legato: 0-63
	staccato: 64-127
Orchestra Clarinet Section	legato: 0-63
	staccato: 64-127
Orchestra Bassoon	legato, non-vibrato: 0-39
	legato with vibrato: 40-87
	staccato: 88-127

Horns

Instrument	Articulations
Orchestra French Horn	legato: 0-63
	staccato: 64-127
Orchestra Fr. Horn Section	legato: 0-39
	staccato: 40-87
	crescendo: 88-127
Orchestra Trumpet Section	legato: 0-63
	staccato: 64-127
Orchestra Trombone Section	legato: 0-63
	staccato: 64-127
Orchestra Tuba	legato: 0-63
	staccato: 64-127
Orchestra Brass Ensemble	single articulation

Mallets

Instrument	Articulations
Orchestra Timpani	single hit: 0-41
	tremolo (quick roll): 42-85
	tremolo with crescendo: 86-127
Orchestra Glockenspiel	single articulation
Orchestra Xylophone	single articulation
Orchestra Marimba	single articulation

Instrument	Articulations
Orchestra Tubular bells	single articulation
Orchestra Crotales	single articulation

Organs

Instrument	Articulations
Orchestra Baroque Organ	single articulation
Orchestra Church Organ	single articulation
Orchestra Flute Organ	single articulation
Orchestra Wedding Organ	single articulation

Pianos and Keyboards

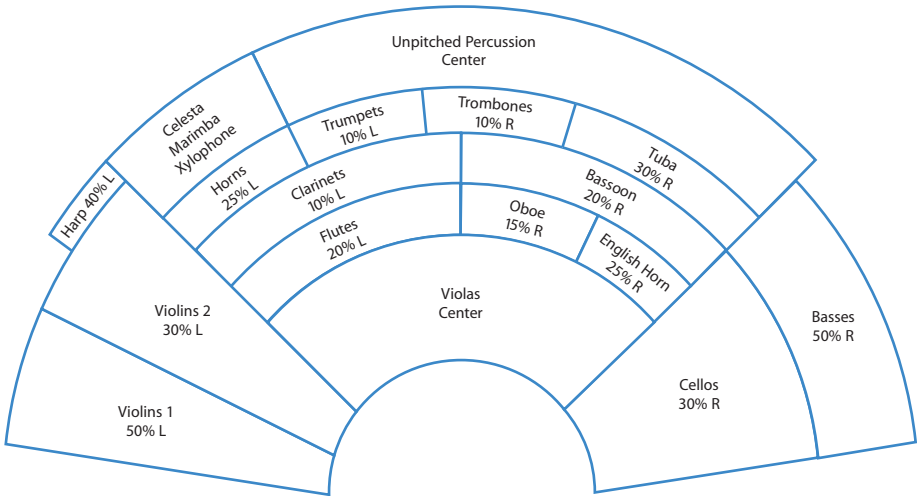
Instrument	Articulations
Orchestra Steinway Piano	single articulation
Orchestra Harpsichord	single articulation
Orchestra Celesta	single articulation

Drum Kits

Instrument	Articulation
Orchestra Kit	single articulation

Placing the Symphony Orchestra Instruments

Most orchestras place the instruments on stage in a standard seating arrangement. Besides enabling the musicians to hear each other and see the conductor, this makes it easier to hear each instrument distinctly, even in a busy or fast piece of music. You can "place" the Symphony Orchestra instruments using the pan dial in each instrument's track header, to recreate a realistic orchestral sound. Use the illustration below as a guide. The numbers indicate the pan position, and the letters "L" and "R" indicate whether to pan the instrument left or right.



History of the Orchestra

The orchestra that we know today developed gradually over a period of several hundred years. It continues to grow and change today to meet the demands of both composers and audiences.

Since the time of the Renaissance (*circa* 1430-1650 A.D.), musicians have combined various instruments into ensembles in order to make use of their different tone colors playing together. These ensembles were not standardized, however, and varied with the setting, the music, and the available musicians. The Baroque period (*c.* 1600-1750) saw a tremendous flourishing of music for instrumental ensembles of all types, but still without a standard group of instruments. J.S. Bach's *Brandenburg Concertos* provide a great example of the variety of ensembles used at the time.

In the Classical period (*c.* 1770-1830), large instrumental groups became standardized into what we know as the orchestra. The foundation for the classical orchestra was the five-part string section (consisting of first and second violins, violas, cellos, and basses), in addition to which woodwinds (usually in pairs), some brass (typically French horns and trumpets), and timpani were added. The symphonies of Haydn and Mozart frequently make use of this instrumentation.

Beethoven expanded the symphony orchestra to include a larger number of players, and added instruments such as the piccolo, trombone, and cymbals which had previously been used in opera but not in symphonic music. His *Ninth Symphony*, which also included a chorus, inspired other composers in its length, originality, and use of orchestral forces. The trend to expansion continued throughout the Romantic era (the nineteenth century), reaching its height in the massive orchestras of Strauss and Mahler around the turn of the twentieth century.

Since 1900, orchestras have continued to add new instruments, particularly to the percussion section, as composers sought new ways to realize their musical visions. Continuing the tradition of opera and theater music, the symphony orchestra became the vehicle for communicating emotion and drama in motion pictures. Popular music, first jazz and then rock, incorporated the sounds of the orchestra, producing such classics as Gershwin's *Rhapsody in Blue*. And recently the orchestra has been mixed with electronic and ethnic instruments, producing unique and striking new combinations.

The advent of digital audio has brought the palette of orchestral sounds to anyone with a personal computer and music creation software, such as GarageBand. With the instruments in Symphony Orchestra, you can follow your imagination to create orchestral songs in any existing style, or strike out in new directions to create your music.

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