

5 Sampling/Resampling

Overview

What is Sampling?

Sampling is the process of digitally recording sound. Digital recording captures sound by taking many brief snapshots of the sound—44,100 snapshots per second in the ASR-X Pro—and storing each of these as numerical data. Each of these snapshots is each called a *sample*. When a sampler plays back the recording the spaces between such quickly occurring samples are imperceivable, and the original sound is faithfully reproduced. In the ASR-X Pro, a digital recording is called a *wave*. In fact, “wave” refers to either a mono wave or a stereo wave, even though a mono wave is comprised of a single digital recording, while a stereo wave is actually made up of two such recordings panned left and right. Waves in the ASR-X Pro are AIF (for “Apple Interchange Format”) files.

What is Resampling?

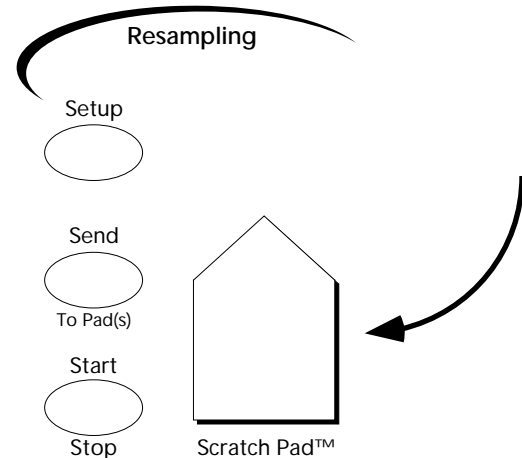
Resampling is, as its name implies, simply sampling something again. The importance of resampling in the ASR-X Pro should not be underestimated, though, since you can resample any sound the ASR-X Pro produces and use the resampled material in your grooves, or as the basis for even more resampling. Used together with the ASR-X Pro’s built in effects and editing tools, resampling is the key to getting the most out of your ASR-X Pro. It’s for this reason that the sampling and resampling section and buttons on the ASR-X Pro front panel are labeled “Resampling.”

What Happens When You Create a Wave

When you sample audio on your ASR-X Pro, the newly created wave is stored invisibly in RAM and becomes playable from the Scratch Pad.

This pad can be played in the same manner as any other pad. The Scratch Pad is unique, however, in that it’s only a temporary means of playing a wave. To make fullest use of a wave, it must be assigned to one or more pads in a RAM kit. Sending to pads is described in detail later in this chapter.

Tip: You can save the contents of the Scratch Pad directly to disk along with a sound that will play them. The procedure is described in Chapter 7.



What can be Sampled in the ASR-X Pro

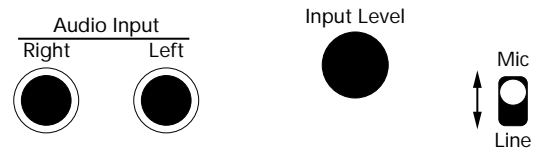
The ASR-X Pro can create stereo or mono waves from:

- its own outputs, letting you easily resample new sounds from its sounds and sequences, taking full advantage of the ASR-X Pro effects.
- the two Audio Input jacks on its rear panel that let you sample anything from a mic, turntable or CD player. You can make these samples with or without adding effects.
- the ASR-X Pro outputs and the audio inputs at the same time.

“Selecting a Source,” later in this chapter describes how to select your audio source.

Using the ASR-X Pro Audio Inputs

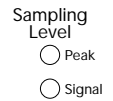
The rear panel of the ASR-X Pro provides two 1/4" input jacks to which you can connect line-level audio sources—such as a turntable or CD player—or a low impedance microphone. You'll also find a Mic/Line switch and an Input Level adjustment knob whose uses are described below.



You can send audio into the ASR-X Pro through either or both of the Audio Input jacks. If you're using a microphone, or microphone-level device, flip the Mic/Line toggle switch upward for the best results. When using a line-level device, flip the switch to its downward position.

Setting the Optimum Audio Input Volume

The volume of audio being sent into the ASR-X Pro's Audio Inputs is shown in the front-panel Sampling Level LED array. When the ASR-X Pro detects incoming audio, the lower green LED flashes. When the audio is in danger of being too loud, causing clipping, the red LED flashes. In the ASR-X Pro, the red LED does not necessarily mean that your input signal is too loud—it means only that you should listen to it carefully to make sure that it's not undesirably clipping or distorting. The red LED lights at -6dB.

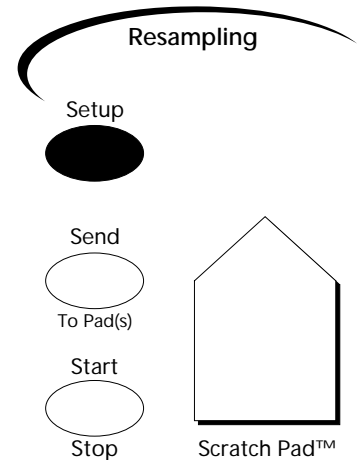


To adjust the volume of the signal being sent into the Audio Inputs, slowly turn the rear-panel Input Level knob to achieve the best setting. You can also turn up or down the actual source of the audio.

Resampling Setup

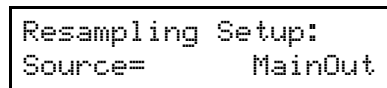
This section describes the first steps of the sampling/resampling process: setting up. All of the features described in this section are accessed by pressing the Resampling Setup button.

Once you've pressed the Setup button, you can turn the Parameter knob to select the parameter you'd like to adjust and turn the Value knob to set the selected parameter. The factory defaults for these parameters are listed in each description in case you want to restore them after using the "Save these settings?" command (Chapter 7).



The Resampling Setup Display

All of the sampling/resampling setup parameters—with the exception of the Trig (for "trigger") parameter and meter—share a common display format in which the phrase "Resampling Setup" appears on the top line, and the parameter being adjusted appears on the bottom line:



↑
The parameter selected for editing

Source

factory default value: MainOut

The first item to determine when you want to sample or resample is the source of the audio to be sampled. When the Resampling Setup Source parameter is displayed, you can set it to:

- MainOut—to resample audio being produced by the ASR-X Pro, including sounds or sequences.
- Input+MainOut—to capture audio being produced by the ASR-X Pro, combined with audio being sent into its Audio Inputs. When this value is selected, an additional In Bus parameter is available

that allows you to send the Audio Inputs' signal into the desired ASR-X Pro effect (see "Selecting an FX Bus when Sampling a Mix of the Audio Inputs and the ASR-X Pro Output" below).

- Input+Insert—to sample the Audio Inputs' signal after it's been processed through the currently selected insert effect.
- Input Dry—to sample the Audio Inputs' signal without any ASR-X Pro effects added.

In Bus

factory default value: Insert

When Resampling Setup Source parameter is set to "Input+MainOut," you select the effect, if any, through which the Audio Inputs' signal will be sampled. The In Bus parameter can be set to:

- Off—to silence the Audio Inputs' signal.
- Insert, LightReverb, MediumReverb, WetReverb—to route the Audio Input's signal into the ASR-X Pro effects (see Chapter 4 to learn more about ASR-X Pro effects).
- Dry—to apply no effects to the Audio Input's signal.

Rec Mode

factory default value: Stereo

The Rec Mode parameter allows you to determine whether you'll be recording a mono or stereo wave. You can set this parameter to:

- Stereo—so that a stereo wave (really a pair of waves panned left and right) will be created from audio produced by the selected source. When the Source parameter is set to "MainOut," the entire stereo image produced by playing the ASR-X Pro's pads or sequencer will be captured. When the Audio Inputs are being used, the incoming audio's stereo image is retained; if only the left or right Audio Input jack is being used, the signal will remain only on the left or right, respectively.
- Left Mono—so that a mono wave will be created from the left side of the selected audio source. The left side of the source will be panned to the center for monitoring purposes and for being sent into the effect and for being routed into the effects when they're being sampled (the left output of the effects will be captured in the wave).
- Right Mono—this functions in the same manner as Left mono, except that it uses the right side of the stereo.

Auto-Normalize

factory default value: Off

The ASR-X Pro can automatically normalize your wave when you create it. Normalizing digitally boosts the wave to its loudest volume short of clipping or distortion in order to achieve the best fidelity and signal-to-noise ratio. The Auto-Normalize parameter turns this automatic volume correction on or off.

Tip: You can normalize a wave after you've sampled it, if you prefer, by utilizing the Pad Process normalization feature (see Chapter 3).

Record Time

factory default value: [maximum time in stereo]

Each wave occupies a portion of the ASR-X Pro's sample memory for as long as the ASR-X Pro is turned on, or until you erase the wave. The longer the duration of the wave, the more memory is required, and stereo waves, since they actually contain two mono waves, take up twice as much memory as mono waves do. If you create stereo waves, you'll consume the available memory twice as fast. The ASR-X Pro's sample memory can be easily expanded to 34 megabytes through the installation of SIMM chips (see Chapter 7).

Tip: You can find out how much memory is available in your ASR-X Pro using the Memory Manager. See Chapter 7.

The ASR-X Pro provides the Record Time parameter to let you limit the amount of sample time you're willing to commit to a wave you're about to sample. You may choose to do this to hold a chunk of memory aside for later sampling, or simply to limit the length of the wave for musical reasons. Record

Time can be set anywhere from 0.5 sec—for “seconds”—to the maximum amount of sampling time remaining in your ASR-X Pro. The parameter shows you the amount of memory available for the type of sampling—stereo or mono—that you’ve selected with the Rec Mode parameter, described above.

Pre-Trigger Time

factory default value: 3ms

The ASR-X Pro will automatically begin sampling/resampling whenever it detects audio of a specified loudness when its Trig mode parameter (see below) is set to “Threshold” or “Note Event.” Pre-triggering allows you to grab audio that occurs during a specified period of time just before your source reaches a volume loud enough to cause sampling to begin. This is possible since the ASR-X Pro continually captures audio into its sample memory behind the scenes once sampling is enabled. Pre-triggering can help ensure that the front of whatever you’re sampling isn’t chopped off before it reaches the threshold volume (see “Setting the Trigger Threshold” below to learn about setting this threshold). You can set the length of pre-trigger time anywhere from 0ms (for “milliseconds”) to 99ms.

Trig Mode

factory default value: Threshold

There are three ways that the ASR-X Pro can begin sampling/resampling what it hears. Each of these choices is represented by a value that can be selected for the Trig (Trigger) Mode parameter:

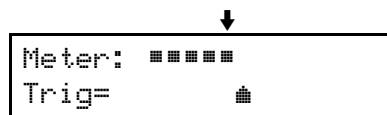
- Manual—With this setting, the ASR-X Pro will only begin sampling when you press the Sample Start/Stop button.
- Threshold—With this setting the ASR-X Pro will begin sampling when it detects audio from the selected source that reaches the threshold set with the Trig parameter, described below.
- Note Event—With this setting, the ASR-X Pro will begin sampling when a pad is played or a MIDI note (note-on) message is received from an external MIDI device on any MIDI channel. This is especially handy when you’re resampling sounds in the ASR-X Pro.

Each of these modes is activated by pressing the Sample Start/Stop button, and de-activated by pressing the Start/Stop button a second time (see “How to Start and Stop Sampling a Wave” below).

Setting the Trigger Threshold

The Trig parameter allows you to set a volume threshold at which the ASR-X Pro will begin sampling/resampling its source when the Trigger Mode parameter (described above) is set to “Threshold.” This parameter is presented in a special display that makes it easy to select a useful volume:

The top line is a meter that shows the volume of notes as you play



The pad symbol shows the current threshold setting

By playing some notes on a pad or via MIDI that represent what you intend to sample, you can see the volume of your audio on the display’s top line. By turning the Value knob, you can move the pad symbol to match the level at which you expect to play the audio you’ll be sampling.

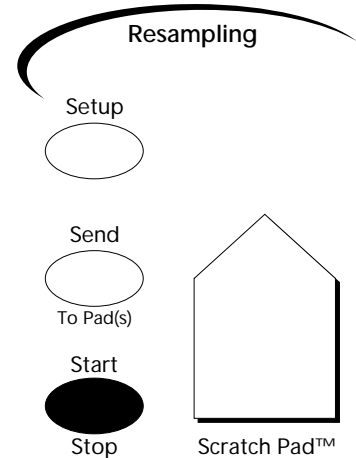
Tip: Take a few moments to find the right Trig setting—if you set the threshold too low, sampling may begin too early; if you set it too high, sampling may not begin when you want it to if you play a pad or key too softly.

Sampling/Resampling a Wave

How to Start and Stop Sampling a Wave

The Start/Stop button is the device that turns sampling/resampling in the ASR-X Pro on and off. When the ASR-X Pro is not sampling, pressing the Start/Stop button engages the sampling function in a manner determined by the setting of the Trig Mode parameter (described above):

- When Trig Mode is set to “Manual,” the ASR-X Pro begins sampling at the moment you press the Start/Stop button.
- When Trig Mode is set to “Threshold,” pressing the Start/Stop button causes the ASR-X Pro to begin listening for a source signal loud enough to trigger the beginning of sampling.
- When Trig Mode is set to “Note Event,” pressing the Start/Stop button causes the ASR-X Pro to wait for a pad to be played, or a MIDI Note message to trigger the beginning of sampling.



Note: After you press the Start/Stop button when Trig mode is set to either “Threshold” or “Note Event,” the display will show waiting for “Waiting For Trigger.” Press Start/Stop a second time to begin sampling without triggering. To disable trigger sampling, press the Exit/No button.

Once sampling begins, the ASR-X Pro display shows you its progress:

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Sampling In Progress
=====*
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↑
This graphically shows the amount of sampling time being used

The bottom line of the display becomes a meter that shows how much of the sampling time allotted with the Record Time parameter (see above) has been consumed by the wave you’re creating.

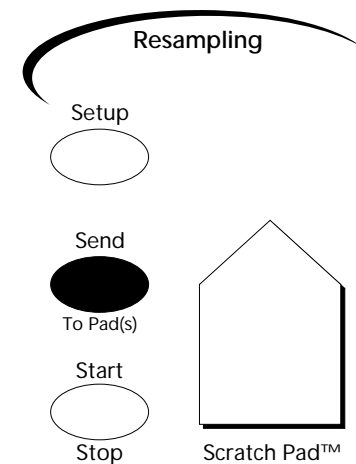
Tip: You can view other areas in the ASR-X Pro as sampling occurs—this can be handy when resampling the sequencer or when tweaking sounds or effects in real-time. “Sampling In Progress” flashes on the display’s top line in alternation with the display pertaining to the non-sampling area of the ASR-X Pro you’ve selected.

When sampling is in progress, pressing the Start/Stop button stops sampling. When sampling is complete, the “SendTo Pads?” display appears (see below to learn about sending a wave to pads). You can audition your new wave at this point by playing it on the Scratch Pad.

Sending a Wave to Pads

When you’ve finished sampling/resampling, the new wave is playable from the Scratch Pad. To make the wave truly usable, however, you’ll want to send it to one or more pads in the currently selected RAM kit.

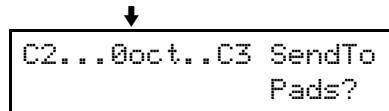
Note: If the currently selected track is not using a RAM kit when you begin sampling, the ASR-X Pro will convert the track’s sound into a RAM kit for you, so that you’ll have somewhere to send your wave. The new kit—which will be named after the original sound with a number added to its end—can be found in the USER-SND and DRUM-KIT SoundFinder categories.



Tip: If you'd like to sample into an otherwise empty kit—a “clean slate,” in other words—select the ROM sound called “Silence” before you sample. This will be converted into a RAM kit that will play only your wave. You can assign any sounds you like to its pads after you've finished sampling and sending your wave to the desired pad or pads.

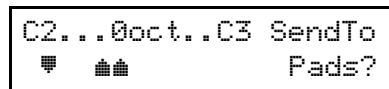
When you press the Resampling Start/Stop button to finish sampling, the “SendToPads?” display automatically appears:

The top line shows the octave to which the pads are currently pointing



If you'd like to send the wave to a pad in an octave other than the one currently being played by the pads, you can select the desired octave using the Octave Transpose button (see Chapter 3 to learn more about using the Octave Transpose buttons). The display will always show you the octave currently being played by the pads.

After selecting the desired octave, press each pad to which you'd like to send your wave. (You can use the Octave Transpose buttons at any time during the SendTo Pads procedure, allowing you to send your wave to any pads in any octaves.) The display will graphically show which pads have been selected.



This shows the second, fifth and sixth pads in the selected octave as having been pressed

If you've selected a pad, but would like to un-select it, press it again—and wave won't be sent to the pad.

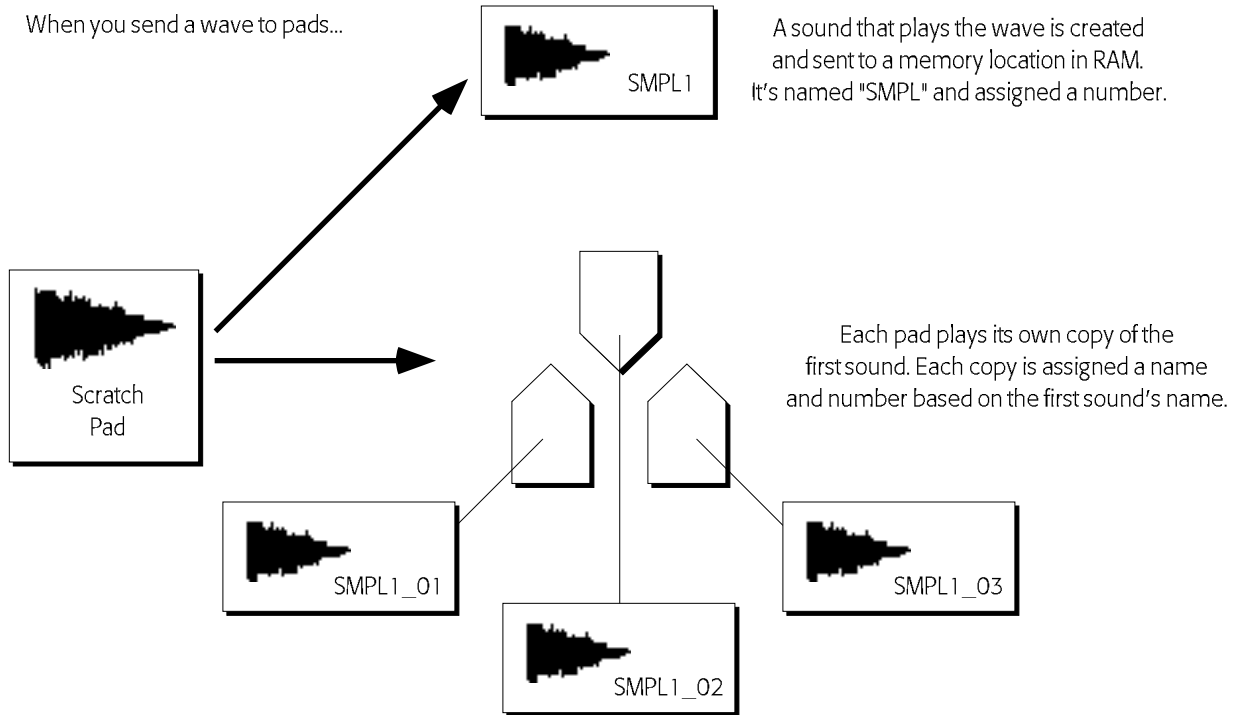
When you've selected all of the pads to which you want to send your wave, press the Yes button. If you'd like to cancel the procedure, press the No button.

Tip: After you've sent a wave to pads, the wave remains in the Scratch Pad until you sample something else or turn the ASR-X Pro off. You can send the contents of the Scratch Pad to a pad in a RAM kit at any time by pressing the Resampling Send To Pad(s) button.

What Happens When You Send a Wave to a Pad or Pads?

When you send a wave to a pad in the selected track's RAM kit, the ASR-X Pro creates a standard RAM sound that plays the wave (see Chapter 3 to learn more about ASR-X Pro standard and kit sounds). The sound is named “SMPL” followed by a number—when you power up, the ASR-X Pro starts back at SMPL1 and raises the SMPL number value each time you sample something new and send it to pads. The SMPL sound is not actually played by any of the pads—it's created as a safety copy of the sound that can be selected from SoundFinder and assigned to a track or pad at any time.

When you send your wave to pads, the ASR-X Pro creates copies of the SMPL sound—one for each pad. Each of these will be named similarly to the sound, but will have an additional underscore and number following its name. For each pad you send the wave to, the number increases by one. This allows you to be able to tell which sound is played by each pad. You can change the name of any of these sounds using the Memory Manager if you like (see Chapter 7).



Having each pad play the wave using its own sound allows you to edit each pad's sound separately while keeping the wave on which it's based intact (to learn more about editing pad sounds, see Chapter 3). These sounds are normal ASR-X Pro standard sounds and are stored in the lowest-numbered empty locations in RAM. They can be selected for use by a pad in any RAM kit or by any track in the sequencer.

Automatically Spreading a Wave Across all of a Kit's Pads

There may be times when you'd like to spread your wave across all the pads, with each one playing it at a different pitch. To do this, press the Track Sound button, dial in the *CUSTOM SoundFinder category, and select the original SMPL sound (SMPL1, for example). As a standard sound, it will be played by all the pads. To hear the wave at its original pitch and speed, use the Octave Transpose button to aim one of the pads at Middle C (C4). Middle C is always the root key for a wave.