# Lesson 3: The Mixer

## #1 Lesson Overview

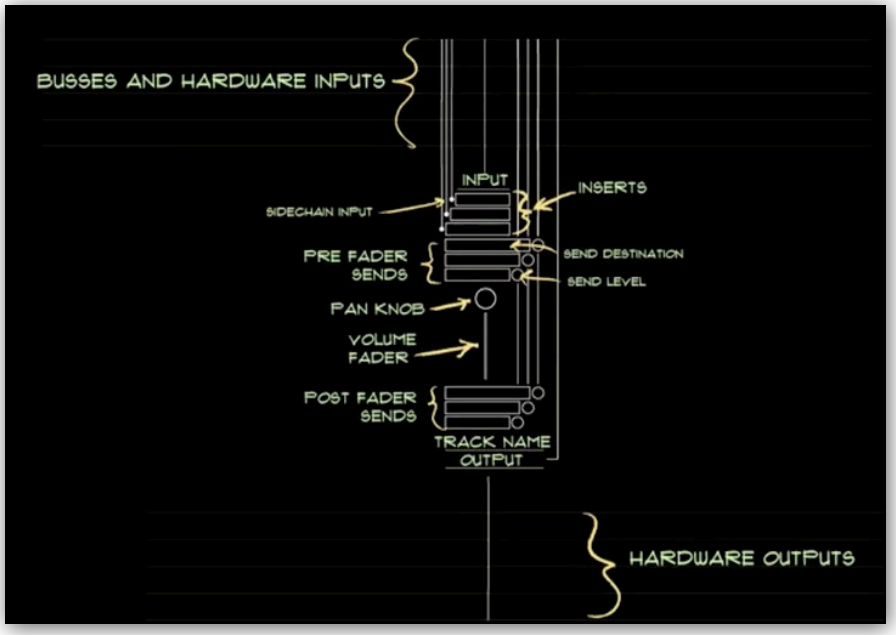
- Mix from the perspective of the listener. What will they hear and focus on when listening for the 1st time? Think about the clear path through the music. One section, highlight melody, another, bass, etc.

## #2 The Channel Strip

### ANALOG MIXER

- **TRIM Control** (adjusts the gain of the Mic Preamp) / Line In Button / Bal or Unbal / XLR - The is the **Mic Pre Section.**
- **Signal Flow runs from** Top to Bottom input at top and output section at bottom, w/ exceptions.
- **Insert Section - t**he sound goes OUT one side of the cable and comes back IN through another - creates a loop from the mixer to an external device of gear (compressor, EQ, etc). and back to mixer. **Insert Cable:**


- **AUX Send** - separate output for the track. Routes a track to more than one place.
- **EQ Section** (maybe)
- **Pan Knob: "**Reduces" the two levels of either left or right.
- **Fader:** U (Unity) will not amplify or attenuate the signal. Keep here as much as possible.
- All tracks are combined and sent to the **Main Master Bus** - Peaks in Yellow, never going into the Red.
- It's a Mono Channel Strip but Output is always Stereo.

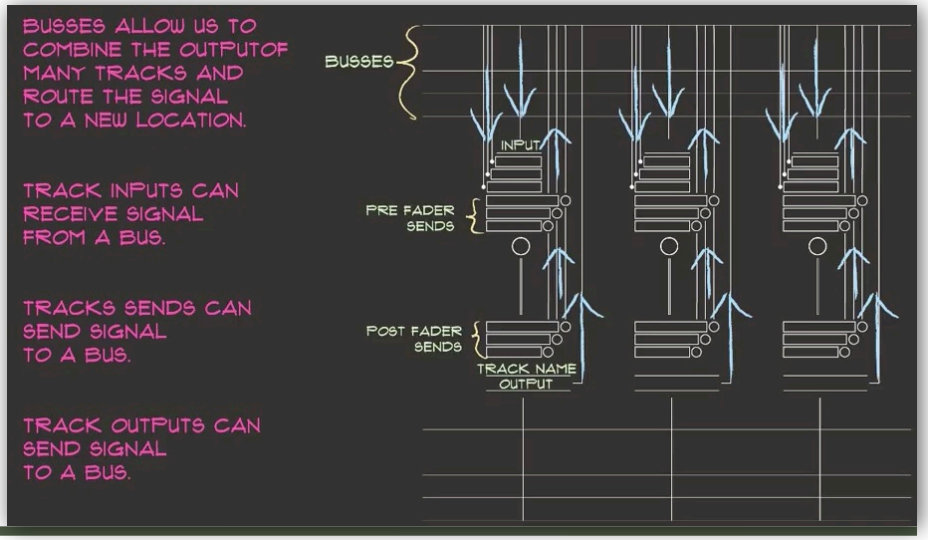



## DAW - Signal Flow

- **Inputs**
- **Outputs:** Routes to Hardware and Buses.
- **Learn the direction of the Signal Flow.**
- **Inserts:** collection of places where we can add effects - Gates, Compressors, etc.
- **SENDS:** It will always be sent to a **Bus or output.** Can exist in two different places, **pre-fader and post-fader**. Set the **Level** - how much to signal is going to the output?
- Volume and Pan

## #3 The Bus Concept

- Anytime you are trying to combine multiple streams of audio (tracks), you'll need a BUS (**aka: Summing Bus**).



## Lesson 3, Con't: The Mixer

Some DAWs do this automatically, others require setup and naming. A bus combines signals from several other places on a mixing board.

- Multiple drum tracks going to one location bus is also called a **Sub-Mix**.
- Another signal flow that uses busses (Aux): siphoning off a bit of sound from each one of the tracks and sending it to another effect or monitor mix, this is a **send/return signal flow. (i.e. a Monitor Mix)**
- The hardest problems to troubleshoot are when the busses are used incorrectly.
- I/O Window in the DAW allows creating, assigning and naming Busses.

### #4 Effects Categories

- Setting up audio effects in the most efficient way.
- 3 categories of audio effects (also called **DSP** - Digital Signal Processing)
- **1-Dynamic Effects (related to Amplitude)**
- **2-Delay Effects (related to the Propagation principle of sound).** (i.e. creating an Illusion of 3 dimensionality.)
- **3 - Filter Effects (related to Timbre)**
- We setup our signal flow to how we want to process things. i.e. Drums as a single unit (SubMix), using one plugin. One Reverb Send and Return (Aux) that can be used for multiple tracks in different amounts.

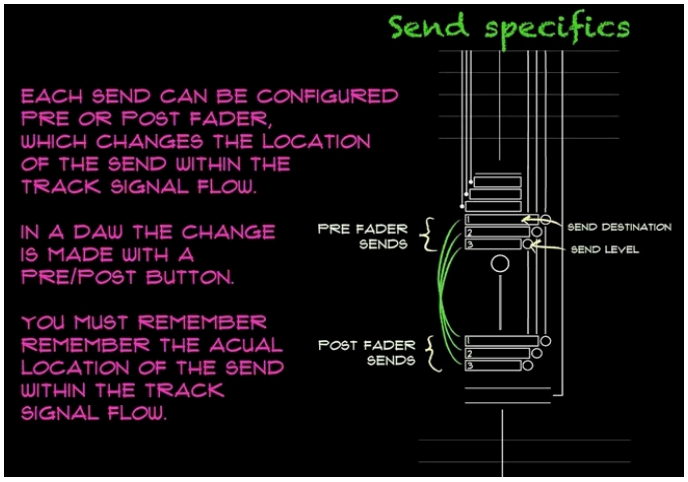
**Dynamic Effects (Control Amplitude)**
- Compressors
- Limiters
- Expanders
- Noise Gates

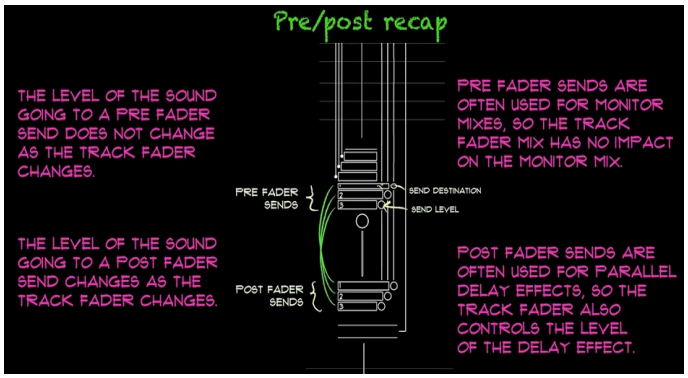
**Delay Effects (Control Propogation Qualities)**
- Reverbs
- Delays
- Phasers
- Flangers
- Choruses

**Filter Effects (Control Timbre)**
- High Pass Filter
- Low Pass Filter
- Band Pass Filter
- Parametric EQ
- Graphic EQ

### #5 Inserts

- Easy to do Inserts in a DAW, unlike the cabling in an analog board. You can buy 3rd party effects. **It's common to use dynamic and filter effects as inserts in a track.**
- The Insert Effects process one by one from top to bottom (i.e. serial processing).
- Common to add delay and reverb into an aux track (which is a SEND structure).
- Processing power is ALWAYS a concern, use as few effects as possible, and be aware of resources.
- **Inserts:** add an EQ. SAVE SETTINGS for other projects, becoming modular. Learning to BYPASS (mute) to audition with and without. Learn to Use a Preset and Save a Preset.
- Correct order for the signal flow in a mixing board: **Input trim —> Inserts —> Pre Fader Sends —> Track Fader —> Post Fader sends**
- **It makes a difference which ORDER the inserts are in.** Top to Bottom or Left to Right. The sound enters the top of the channel strip, gets processed by the first plugin, then moves down to the next one and so forth. It can be useful to change their order. Usually use of a modifier key and dragging.



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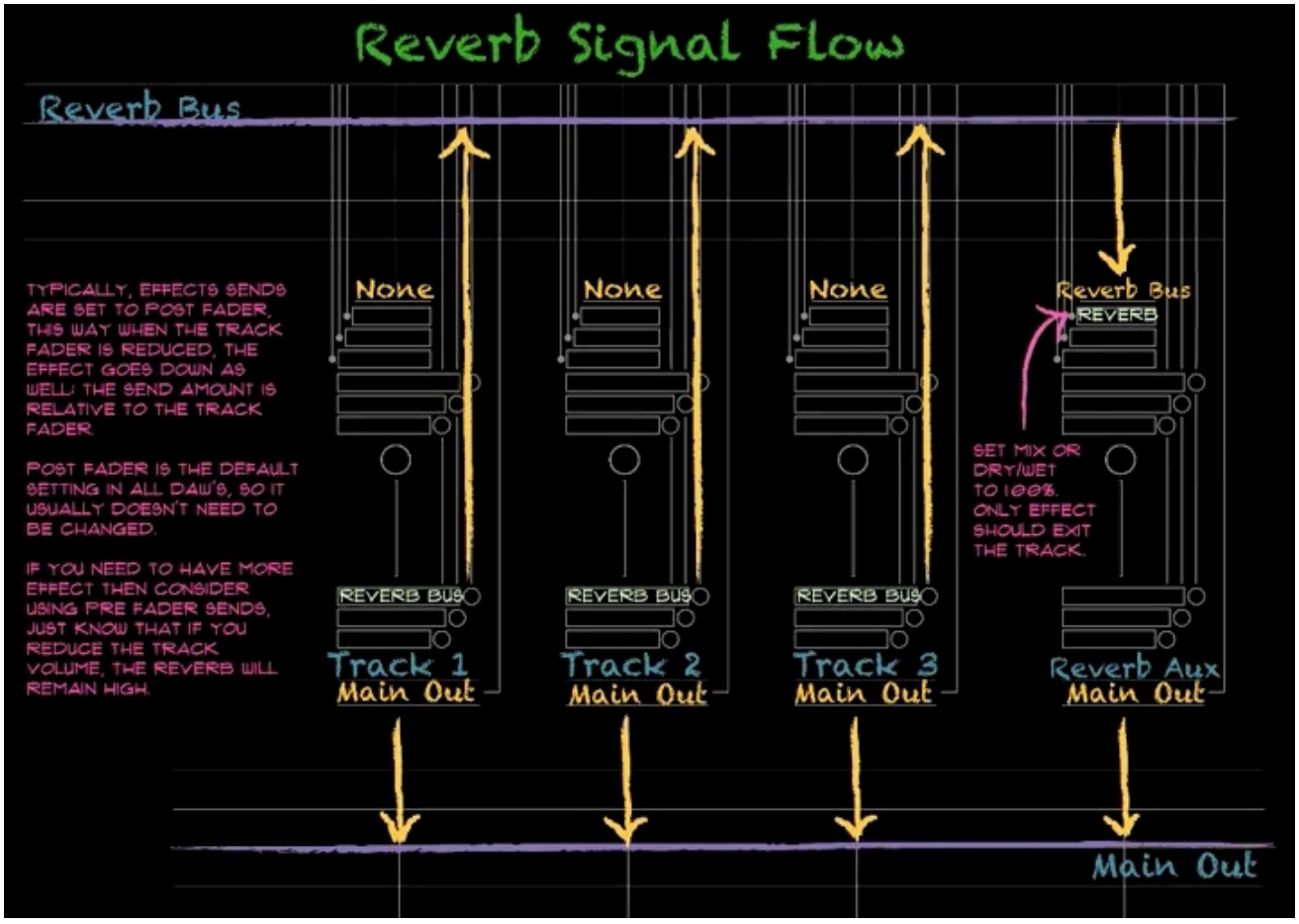
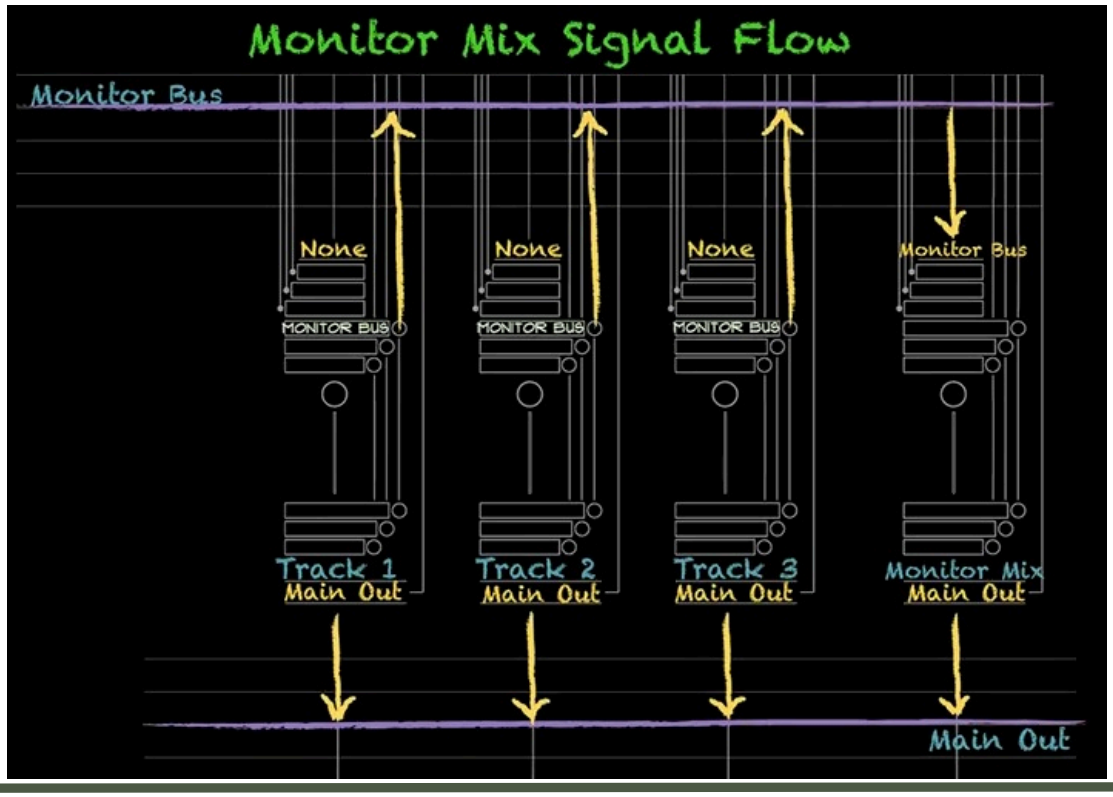


# Lesson 3, Con't: The Mixer



- Copy plugins between tracks.
- MIDI data cannot use the same plugins.
- LEARN THESE in your DAW:

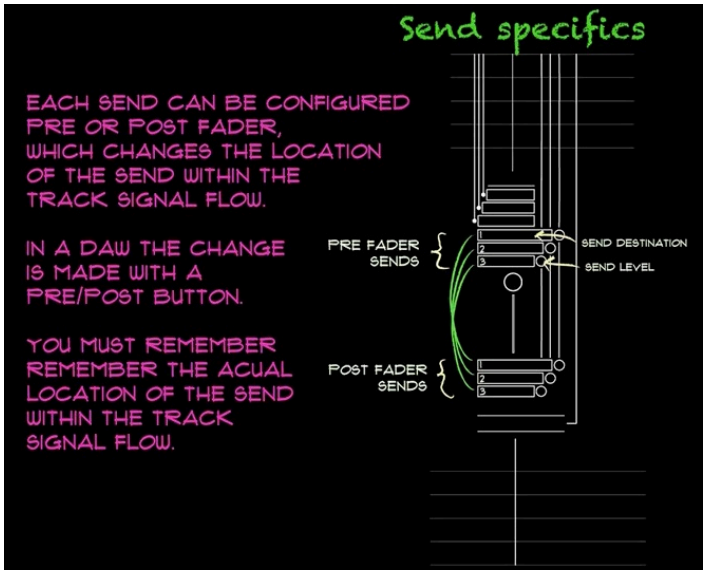
Necessary Insert Skills:
-Adding inserts
-Bypassing inserts
-Choosing presets
-Saving presets
-Changing order of inserts
-Copy / pasting inserts

## #6 The Submix (a mix within a mix - **Bus**)

- **Create a single Bus** (name it well!) **Route the outputs** of the individual tracks to the **Drum Submix** Bus. Then, create an stereo **Aux Track** (New Track) whose **INPUT** is that **Drum Submix** Bus. Use a single insert like an EQ or compressor, effecting all the drums as a single unit. A single fader now represents the entire Drum Kit.
- **Creating a New Bus:** Make it Stereo, Route Tracks to New Buss. Create an AUX Track, set input to the Drum Submix Bus. You can then add an EQ insert on that bus, controlling all the drums simultaneously.

## #7 Sends (WATCH AGAIN!)

- **AUX SENDS -** Routing the same signal to a different place but with a different amount or pan position.
- Send Section is the most complicated on the mixer.
- Tricky part is they are not where they look like they are—knob might be in one place but the send might be happening in a different location. It can be moved between two different locations: before the fader (PRE - totally **in-dependent** of the track fader) or after the fader (POST - totally **dependent** on the track fader, where changing the level of the fader, changes the amount that's going to that SEND.)
- **Good use of a Track SEND is a Monitor Mix** (PRE Aux Send). Band members can hear only what they want to.
- **House Mix** - faders control the what the audience hears.
- **When setting up Effects on Aux Sends, always use POST Send. If set to PRE, you will still hear the effects after fader is brought down. (I need to do this on the Roland 1680!)**
- An **Aux Track** is also called a **RETURN TRACK.**
- **Setting up a Reverb:** Create an AUX using a single plugin.
- **#1 Create a BUS** in your audio assignments (I/O Labels): **Reverb Bus, Bus 2** (Bus 1 is the Drum Submix.)
- **#2 Create an Aux Track**, in Stereo. **Input is set to Bus 2.**
- **#3** Rename **Aux 2** to **Reverb Aux.**



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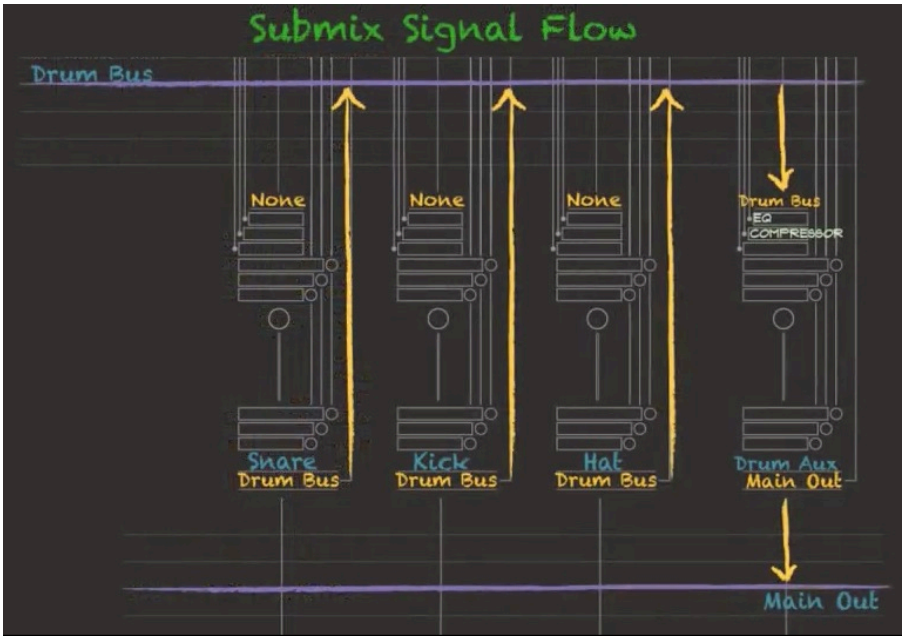


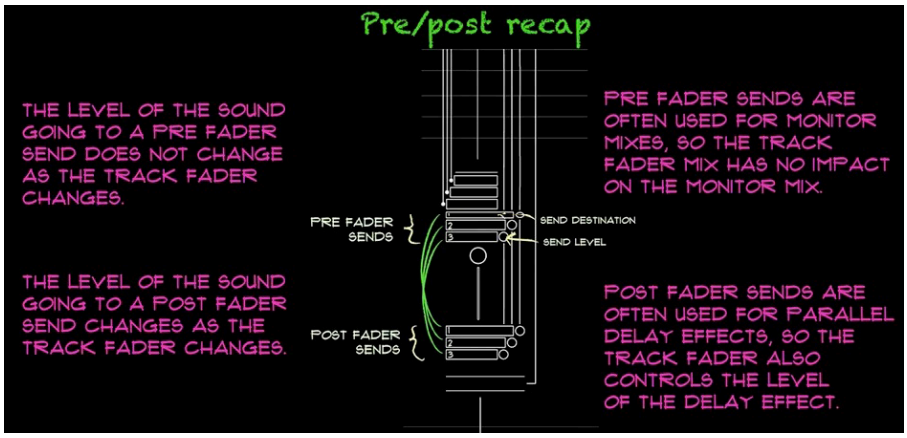


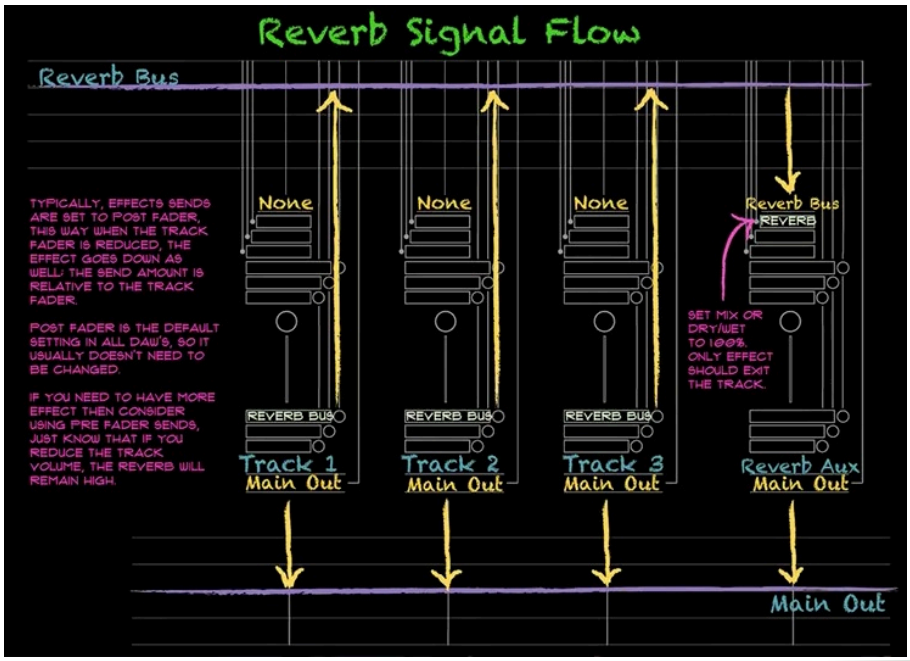


- **#4 Route all track SENDS to Reverb Bus, POST Fader (Dry/Wet).**
- **#5 on the Reverb Aux**, INSERT needs to be set to **Reverb**. Platinum Verb, Stereo. **Set WET to 100%**. Set TYPE of Reverb (#default) to Big Room or something else.
- The reverb on ALL tracks can be adjusted simultaneously now with the Reverb Aux.
- We use **Post Fader Sends** when setting up **Parallel Effects (reverb/delays).**

## #8 Automation

- Automation (a 'moving' mix) sounds soother (at a higher resolution) than CC midi data.
- Channel strip has automation: **Read, Write, Latch, Touch and Overwrite** Modes for Automation.
- **Any fader, knob or button can be made to change** automatically over the course of the music.
- **LATCH (most useful):** record enable, whenever you touch any fader or button it will start to record your changes to any knobs. Great for fading a track that is too long. You can then adjust the wave. Turn OFF Rec. Stays at the same level you left it at when you hit stop.
- **Pencil Tool:** draw the fade out.
- **TOUCH:** An Overdub for Automation. As soon as you let go of the fader or button, it will snap to the previous it was at at the point you let go of the fader or stop.

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