AUDIO CONSOLES
& WORKSTATIONS
RECORDING STUDIO
CONSOLE

Instead of “Console” you may hear these names.

Board
Mixer
Desk
There are both Analog and Digital Consoles

Analog

Digital
STEPS IN A MULTITRACK SESSION
A REVIEW

• Basic Tracks- Usually the rhythm instruments, often with a metronome or click track

• Overdubs- Additional instruments, Vocals & sounds. Done by listening to a mix of the basic tracks on headphones.

• Mix-Remix- The final balancing & processing of the tracks for the final stereo, quad or 5.1 mixed product.
CONSOLE FUNCTIONS

- **Control** - Allows control of levels of each track & it’s effect levels.
- **Route** - Allows the signal to be routed to recording devices, speakers, effects & headphones.
- **Monitor** - Allows listening of the signals at various stages in the consoles.
- **Modify** - To add E.Q. and other external processing.
- **Mix** - To combine the tracks, reverb & processing for the final product.
· **Input** - Allows signals from input sources such as microphones & line level devices.

· **Output** - Allows signals to be sent to recording devices & signal processors.

· **Monitor** - Allows the signals to listened to. For example: main mix, headphone mix, effects send mix etc.
BUSS OUTPUTS

• A common output from one or more inputs.

• Buss outs allow mixing signals to tracks.

• Send busses allow mixing to headphones, effects etc.
• A panel of input & output jacks that allows connection signal routing & rerouting to external devices by the use of patch cords.
TYPICAL INPUT SECTION

- **48V**: Microphone Phantom Power
- **Mic/Line**: Microphone or Line input selection
- **Pad -20db**: Microphone Pad (reduces input level so that the preamp doesn’t clip (distort))

![Volume Control]

- 22 db
- 70 db
TYPICAL OUTPUT SECTION

- Buss Outputs to Groups
- Buss Out Level
- Pan
- Buss Group Fader
- Mix Master Fader

- Buttons: 1, 2, 3, 4, 5, 6, 7, 8
- Switches: Direct, Mix
- Knobs: 0, 10
- Indicators: Left, Right

[Diagram of audio mixing console components]
METERS TYPES

• VU- Volume Unit- Useful in balancing levels. Similar levels sound similar to the ear.

• Peak- Useful for monitoring recording levels, especially digital when the absolute maximum level must be known.
CONSOLE AUTOMATION

- Allows a computer to “remember” the levels & level changes of a mixer as well as mutes (on-offs) on analog consoles and with most digital consoles, all the levels (E.Q. Effect sends etc.).

- Types of Analog Console Automation
  - Voltage Control Amplifiers or VCA
  - Moving Fader

- Digital Consoles can automate most all controls.
  - Digital Console faders & knobs are often “soft” and can be assigned to control different things.
DAWs
Digital Audio Workstations

Audio Production using Computers
Instead of the standard console, entire projects can be mixed within a personal computer.

Different mixes and remixing can much more easily accomplished.

“Stems” or sub mixes, can easily be made
Editing on DAWs

- Editing is the process of cutting together pieces of separate recordings into a final superior version.

- Computers have revolutionized audio editing.

- Extensive non-destructive editing can be done much more quickly, accurately & overall more successfully than analog tape splicing allows.
Typical Features in DAWs

- Automation capable digital versions of compressors, expanders & noise gates are available.
- Computer modeling allows the re-creation of classic analog dynamic processors but with greatly extended capabilities.
- Sophisticated, dynamic, fully automated equalization is possible, which could not be achieved with traditional analog E.Q.
- A large range of effects can be instantly be recalled. (flangers, phasers, modulators etc.) These can be automated at will.
Comprehensive Automation

• In addition to effect automation, all levels for faders, mutes, sends & returns can be memorized by computer and recalled.

• All automation levels can be viewed graphically.
Summary of Important Points

• Physical Consoles and be Analog or Digital, Digital can be smaller due to consolidation
  
• Digital Advantages over Analog are: Generally smaller due to consolidation of controls, Settings most all knobs and parameters can be stored and/or automated.
  
• Recording Consoles have the following functions; Control, Route, Monitor, Modify & Mix
  
• Recording Consoles have the following sections: Input, Output & Monitor
  
• Recording Consoles can make many separate mixes simultaneously through the use of busses.
  
• A buss is a common output to one or more inputs.
  
• A patch bay allows for the easy connection of external signal processing devices to a console or DAW through the use of jacks and cables.
  
• Peak meters are most useful for situations such as digital recording were the maximum instantaneous level information is needed.
  
• VU (Volume Unit) meters are useful for balancing levels
  
• DAWs, Digital Audio Workstations offer all the capabilities of physical consoles & recorders
  
• DAWs allow the most control through the use of visual digital waveform editing and parameter “breakpoint” automation features.