# 3. Workbench Usage

The Mango Workbench provides a command-line interface for building, testing, and analyzing cryptographic transform sequences. This section focuses on interacting with the system once it's launched, including how to read status output, adjust configurations, and interpret commands like

list

and

help

. While the next chapter will cover the full command set, this section walks through the real-time output you'll encounter in practice.

## 3.1 Understanding the Output of `list`

Here is a breakdown of the key fields you’ll see when you enter the `list` command:

* **Rounds: 5**

Defines how many times the full sequence of transforms is applied during execution. This is a global setting that affects all transforms equally. (Note: Per-transform round tuning is covered later and overrides this globally.)

* **MaxSequenceLen: 3**

Sets the maximum length for sequences during automated discovery (e.g., Munge). It does not limit how many transforms you can enter manually while using the Workbench interactively.

* **InputType: Sequence**

Specifies the type of input data currently being used for evaluation. This setting allows researchers to observe how well sequences perform across different data classes — such as Natural, Random, Sequence, and Combined. It does not directly affect scoring logic, but the resulting metrics can vary dramatically based on this selection.

* **PassCount: 0**

Indicates how many of the 9 core cryptographic metrics were passed by the most recent sequence run. Also used by automated systems like Munge to determine whether a sequence qualifies as a contender for further evaluation.

* **DesiredContenders: 1000**

Specifies how many top-performing sequences to retain when running Munge or other automated search tools. These “contenders” are selected based on pass count and/or weighted scores, depending on configuration.

* **Quiet: True**

Suppresses verbose logging during operations, especially during batch runs. Helps keep output readable, particularly in large-scale testing.

* **FlushThreshold: 50000**

Determines how often a batch of successful contenders is sorted and trimmed to the DesiredContenders limit during Munge runs. Sequences that don’t meet the required PassCount are discarded early and do not count toward this threshold. (Note: While there is a periodic 'snapshot' system, it is not discussed here.)

* **SqlCompact: False**

An internal flag used by an early SQL console prototype for compacting query results. This feature is no longer commonly used and can generally be ignored.

* **UseMetricScoring: False**

When enabled, sequences are evaluated using a weighted scoring model across all metrics instead of a simple PassCount. While powerful for certain use cases, this mode is not recommended for most Workbench usage, as it can obscure failures that would otherwise disqualify a sequence.

* **Mode: Cryptographic**

Sets the scoring model used by the system. Cryptographic mode emphasizes entropy, diffusion, and avalanche performance. Exploratory mode relaxes these standards to allow investigation into non-canonical patterns and unusual sequences. Cryptographic mode is strongly recommended for all real-world testing.

* **ReportFormat: SCR**

Controls how result reports are formatted. SCR (screen) is the default. Other supported formats include: TXT, RTF, and CSV. Formats can be combined with comma separation:  
 set ReportFormat SCR,RTF  
 set ReportFilename results.rtf

* **ReportFilename:**

If specified, this sets the destination filename for saved reports. Reports will be echoed to this file in addition to being shown on screen (depending on the ReportFormat).

* **Reporting: SCR**

Specifies the current active display mode. This typically mirrors the ReportFormat, but governs what is immediately rendered after each sequence run. (Usually SCR, unless suppressed.)