**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 interpret status output, adjust configurations, and read results from commands like list and help.

While the next chapter covers the full command set in detail, this section walks through the real-time output you’ll encounter during hands-on use.

**3.1 Understanding the Output of list**

The list command provides a snapshot of your current environment and configuration. Here’s a breakdown of each field:

* **Rounds: 5**  
  The number of *global rounds* — i.e., how many times the full transform sequence is applied during encryption or decryption. This applies to the entire sequence uniformly.  
  *(Note: Per-transform round tuning is covered later.)*
* **MaxSequenceLen: 3**  
  Specifies the maximum sequence length used by automated discovery tools like Munge. It does **not** restrict how many transforms you can enter manually during interactive use.
* **InputType: Sequence**  
  Defines the classification of input data used for evaluation. Options include Natural, Random, Sequence, Combined, and UserData.  
  This setting **does not directly impact scoring logic**, but can significantly affect test results due to varying data structure and entropy characteristics.
* **PassCount: 6**  
  The number of cryptographic metrics (out of 9) that passed in the most recent run.  
  This field is used during automated evaluation to determine whether a sequence qualifies as a viable contender.
* **DesiredContenders: 1000**  
  Specifies the number of top-performing sequences to retain during Munge runs. Contenders are selected based on pass count and/or score, depending on system configuration.
* **Quiet: True**  
  Enables a streamlined output mode. Verbose logs and diagnostic output will be suppressed — especially useful during long-running or multi-threaded evaluations.
* **FlushThreshold: 50000**  
  Controls how frequently the contender list is sorted and pruned to retain only the top DesiredContenders.  
  Sequences failing to meet the pass threshold are discarded early and don’t count toward this value.
* **SqlCompact: False**  
  An obsolete internal setting from an early SQL-based console experiment. This can be safely ignored in all current versions.
* **UseMetricScoring: False**  
  When enabled, sequences are evaluated using a weighted aggregate score across all metrics instead of pass count alone.  
  While useful for fine-grained comparison, this mode may obscure specific failures and is typically disabled during Munge or Workbench experimentation.
* **Mode: Cryptographic**  
  Sets the metric weighting model.
  + Cryptographic mode prioritizes entropy, diffusion, and avalanche strength.
  + Exploratory mode relaxes constraints to surface novel or unusual sequence patterns.  
    Cryptographic mode is recommended for real-world evaluation and default Workbench use.
* **ReportFormat: SCR**  
  Determines which output formats are generated after each sequence run.  
  Supported values: SCR, TXT, RTF, CSV (can be comma-separated).  
  Example:

set ReportFormat SCR,RTF

set ReportFilename results.rtf

* **ReportFilename:**  
  If specified, result reports will be saved to this file in the selected formats (TXT, RTF, CSV, etc.). Output will still appear on-screen if SCR is enabled.
* **Reporting: SCR**  
  Specifies the immediate display mode for sequence results. Typically matches the ReportFormat, unless suppressed.