flexMIRT®
Information Sheet

Vector Psychometric Group, LLC is pleased to introduce flexMIRT® version 3. Cutting-edge psychometric research is at the heart of this substantially updated multilevel and multiple group item response theory (IRT) software package. flexMIRT® was specifically designed with high volume, high stakes analysis and test scoring in mind.

flexMIRT® is unparalleled in its ability to fit a variety of IRT models and its implementation of the latest developments in IRT modeling. For instance, you may:

- Obtain standard IRT models (1-, 2-, & 3-paramter, Graded Response, Nominal, Generalized Partial Credit, Partial Credit, & Rating Scale models)
- Fit multidimensional IRT models
- Fit multi-level (unidimensional or multidimensional) IRT models to nested data
- Fit diagnostic classification IRT models
- Impose or remove constraints within and across groups and levels for item parameters and latent distributions
- Choose from multiple IRT scoring methods including Maximum Likelihood, Multiple Imputations, Modal *a posteriori*, and Expected *a posteriori*
- Obtain weighted IRT to summed score conversion tables for both unidimensional and multidimensional models
- Choose from two estimation algorithms: Bock-Aitkin or Metropolis-Hastings Robbins-Monro
- Choose from a number of item parameter standard error estimation methods, including: Supplemented EM, Fisher (expected) Information Matrix, Empirical Information Matrix, Finite Difference Method, and Sandwich Covariance Matrix
- Estimate population means and covariance matrices, as well as model non-normality of the population distributions via empirical histograms
- Conduct exploratory item factor analysis with analytic rotations
- Obtain a wide variety of item and model fit statistics and indices
- Include covariates that predict the latent variable(s) (MH-RM only)
- Simulate data using the built-in Monte Carlo functionality

In addition to the flexibility of modeling, flexMIRT® also offers desirable technical features including:

- A thorough User's Manual and responsive customer support
- May be installed on and run from virtualized servers
- Syntax-based processing with access via command line interface or an available GUI
- Available in both 32-bit and 64-bit flavors with an extremely small footprint
- A memory allocation scheme which enables calibration of tests with thousands of items and potentially millions of respondents
- OpenMP-based shared memory parallel processing for faster run times

For additional information, visit the flexMIRT® website: http://www.flexmirt.com or email Vector Psychometric Group, LLC at: Sales@VPGcentral.com

flexMIRT®
Comparison Sheet

	flexMIRT	Bilog	IRTPro	Multilog	Parscale
IRT Models					
1-parameter, 2-parameter, 3-parameter	✓	✓	✓	✓	✓
Graded Response	✓		✓	✓	✓
Nominal, Rating Scale	✓		✓	✓	
Partial Credit, Generalized Partial Credit	✓		✓	✓	✓
Diagnostic classification models	✓				
IRT Scores					
Maximum likelihood (ML)	✓	✓			✓
Maximum *a posteriori* (MAP)	✓	✓	✓	✓	
Expected *a posteriori* (EAP)	✓	✓	✓		✓
Multiple imputation (MI)	✓				
Weighted IRT to summed score conversion tables for unidimensional models	✓	✓	✓		
Weighted IRT to summed score conversion tables for multidimensional models	✓				
Advanced Modeling Features					
Multidimensional IRT (MIRT) models	✓		✓		
Alternate algorithms for efficient esitmation of MIRT models	✓		✓		
Exploratory factor analysis with analytic rotations	✓		✓		
Target rotation	✓				
Multi-level IRT models with nested data	✓				
Multi-level hierarchical item factor models	✓				
Impose/remove parameter constraints within/across level-1 groups	✓	✓	✓	✓	✓
Impose/remove parameter constraints within/across multiple levels	✓				
Covariates predicting latent variables	✓				
DIF testing	✓	✓	✓		✓
Standard Error Estimation					
Supplemented EM	✓		✓		
Fisher (expected) information matrix	✓				
Empirical information matrix	✓		✓		
Forward difference method	✓				
Richardson extrapolation method	✓				
Sandwich covariance matrix	✓		✓		
Latent Distributions					
Model non-normality via empirical histograms	✓	✓			
Model non-normality via empirical histograms for hierarchical (e.g., bifactor)	✓				
System Capabilities					
Dimension reduction for single-level models	✓		✓		
Dimension reduction for multi-level models	✓				
Can be operated from virtualized servers	✓				
Access via command line interface or an available GUI	✓	✓	✓	✓	✓
Advanced memory allocation scheme	✓				
OpenMP-based shared memory parallel processing	✓		✓		