



Stage 1 Options:

These settings are all **OPTIONAL**. In most cases, you **DON'T** need to make any change in these settings. However, in some cases, the program does not converge to a solution. Trying to change these parameters (i.e., Quadrature Points or Ridge) could help.

[Stage 1 Configuration]

- 7 Select ID**
ID is the key variable to define the two levels of your data.
- 8 Select Stage 1 Outcome**
- 9 Select Stage 1 Regressors**
- 10 Stage 1 Options (optional)**
Click "Options" for modifying more details in the stage 1 and 2 model. As mentioned, the default settings work in most cases. However, you may optimize some parameters and deal with the convergence problems when/if necessary.

→ Make sure that you click "Submit" so the change(s) can be saved.

* Please see more details in User's Guide Chapter 2.



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[10 - Options]

10a Intercept options

You may uncheck these boxes to remove the fixed intercept(s) in Mean and BS/WS Variance submodels. In most cases, these intercepts should remain checked.

10b Convergence Criteria

It refers to convergence requirement for the maximum correction. The function is to set the accuracy level of the model. The range of the spinner is between 0 and 1 with 0.00001 as default.

10c Quadrature point option

Estimation of the Stage 1 model involves a numerical integration (i.e., quadrature) over the random effect distribution. By default, MixWILD performs adaptive quadrature with 11 points to do this integration. The more points one uses, typically the more accurate is the solution, but also the more time it takes to estimate the model parameters. The usage of "Adaptive Quadrature" is to personalize quadrature to each subject.

10d Maximum Iterations

It uses an iterative ML algorithm to fit the data, and it indicates the number of iterations and prevents the model from running indefinitely.

10e Ridge option

The value is usually set to a small fractional value, and it improves convergence for computationally challenging data. The range is between 0 and 1 with 0.1 as default.

10f Standardize option

Selection of this option will transform all regressors to be variables with 0 mean and variance of 1.

10g Discard subject option

Uncheck the "Discard Subjects" option to use all data for analysis. Or check this option to remove subjects with no variance on the outcome variable

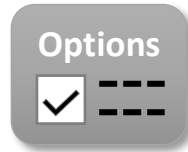
10h Resample options

This is a Stage 2 model option. Resampling of the subject-level random effects are conducted for all Stage 2 models to account for the fact that random effects are estimated quantities.

10i Submit

Click submit to save the settings and go back to the Stage 1 Configuration.

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[10 - Options]

Quick Summary of the Optimal Options

(Please try to change these key parameters one by one in the model)

	Default	Optimization
Quadrature Point	11	15 - 25
Maximum Iterations	200	300 - 500
Ridge	0.1	0.15 - 0.25
Discard Subjects with no Variance	Uncheck	Check

Quadrature Point
Usually, 11 points is sufficient, but if model convergence is not achieved, then increasing the points can sometimes help. So, for example, one might try 15, 21, or 25 points rather than the default of 11.

Maximum Iterations
For example, beyond some number of iterations there are no practical gains. You can increase the number of iterations allowed to see if they will converge if the estimation doesn't converge within the default number. By default, the number of maximum iterations is 200.

Ridge
The ridge increases the values of the diagonal elements of the 2nd derivative matrix by a factor of 1 multiplied by the ridge value. The reason that this is helpful is that this matrix must be inverted at each iteration of the solution, and inversion of this matrix becomes computationally difficult to the extent that the off-diagonal elements of this matrix get large, relative to the diagonal elements. Thus, in cases of non-convergence, one might try increasing the ridge value to 0.15, 0.20, or even 0.25. This will slow down the estimation, but in some cases can aid in model convergence.

Discard Subjects with no Variance
For such subjects with no variation on the outcome, the estimate of their random scale goes to negative infinity and can cause the program to fail to converge. In this case, the selection of the option can facilitate model convergence. **Please note selecting this option will remove these subjects from the stage 1 analysis.**