CERTARA

Phoenix 8.0
Innovating in PK/PD Software—
Streamlined. Robust. Trusted.

Phoenix 8.0 continues to set the gold standard in PK/PD software by delivering innovative features that streamline PK/PD analysis and outcomes, saving time, reducing errors, and providing regulatory agencies with more transparency into the analytical process. From conducting simple as well as the most complex PK/PD analyses, Phoenix is the leading software used worldwide by over 6,000 researchers at biopharmaceutical companies, academic institutions, and global regulatory agencies, including 11 divisions of the US FDA.
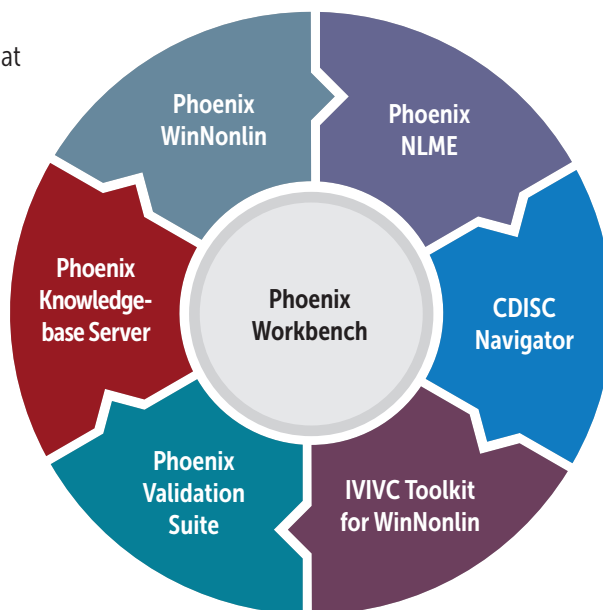
Phoenix 8.0 provides the most robust capabilities for managing, analyzing, and reporting PK/PD and toxicokinetic (TK) data. Discover how these new features will advance PK/PD analysis and results.

New NCA Parameters with Phoenix WinNonlin 8.0

Automatically calculate over a dozen new NCA parameters for plasma and urine to save time, reduce errors, and provide higher transparency for regulatory agencies.

- Plasma parameters
  - Swing (single dose and steady-state)
  - %Fluctuation (single dose and steady)
  - C_{last} (predicted)
  - C_{tau} (observed and predicted)
  - Span
  - AUC_{last}/Dose
  - AUC_{Tau}/Dose
  - AUC_{Tau} %Extrap
  - Lambda_z_intercept
  - $N_{samples}$
  - Dose

- Urine parameters
  - $Rate_{last}$ (predicted)
  - $AURC_{last}$/Dose
  - $N_{samples}$
  - Dose

- User-defined parameters
  - Computed concentrations at any time point (uses interpolation)
  - Arithmetic combinations of any NCA parameter (eg, partial AUC/Dose)

Furthermore, Phoenix 8.0 allows organizations to set criteria for the terminal slope calculation in NCA to ensure compliance with organizational policies. Organizations can set strict criteria for the calculation of the terminal slope in NCA. Those rules can be implemented directly in Phoenix 8.0's updated NCA tool. Specify the maximum number of points to be included in the regression or the earliest time to be used.

Phoenix WinNonlin
Phoenix NLME
Phoenix Knowledge-base Server
Phoenix Workbench
CDISC Navigator
Phoenix Validation Suite
IVIVC Toolkit for WinNonlin

User-defined NCA Parameters

| Options | User Defined Parameters | Rules | Plots |

☑ Include with Final Parameters

Compute Concentrations at Times: [   ]

Additional NCA Parameters

[Add]

Parameter		Definition	Units Label		Errors
Cmax_2	=	Cmax/2	ng/mL	✖	
AUClast_Wt	=	AUClast/Wt	ng/hr/kg	✖	
LogCmax	=	ln(Cmax)		✖	

| Original Parameters | User-defined Parameters |

| Setup | Results | Verification |

Filter: [   ]

Output Data
- Dosing Used
- Exclusions
- Final Parameters
- Final Parameters Pivo
- Partial Areas
- Plot Titles
- Slopes Settings
- Summary Table

	MRTlast (hr)	MRTINF_obs (hr)	MRTINF_pred (hr)	Cmax_2 (ng/mL)	AUClast_Wt (ng/hr/kg)	LogCmax
1	10.181897	21.149805	21.15014	5.25	1.8496828	2.3513753
2	8.0724494	10.36646	10.340045	4.165	1.2255701	2.1198635
3	8.4573209	10.917526	10.92831	4.1	1.3599744	2.1041342
4	8.8838607	11.504068	11.517208	4.3	1.4117417	2.1517622
5	8.7907063	12.394928	12.36642	5.7	2.164457	2.4336134
6	8.6288937	12.022287	12.090539	3.22	0.89621269	1.8625285
7	9.0443761	12.459995	12.487694	3.545	1.3617527	1.9586853

Example of Lambda Z Rules for Best Fit Option: Before and After Setting "Start Time Not Before"
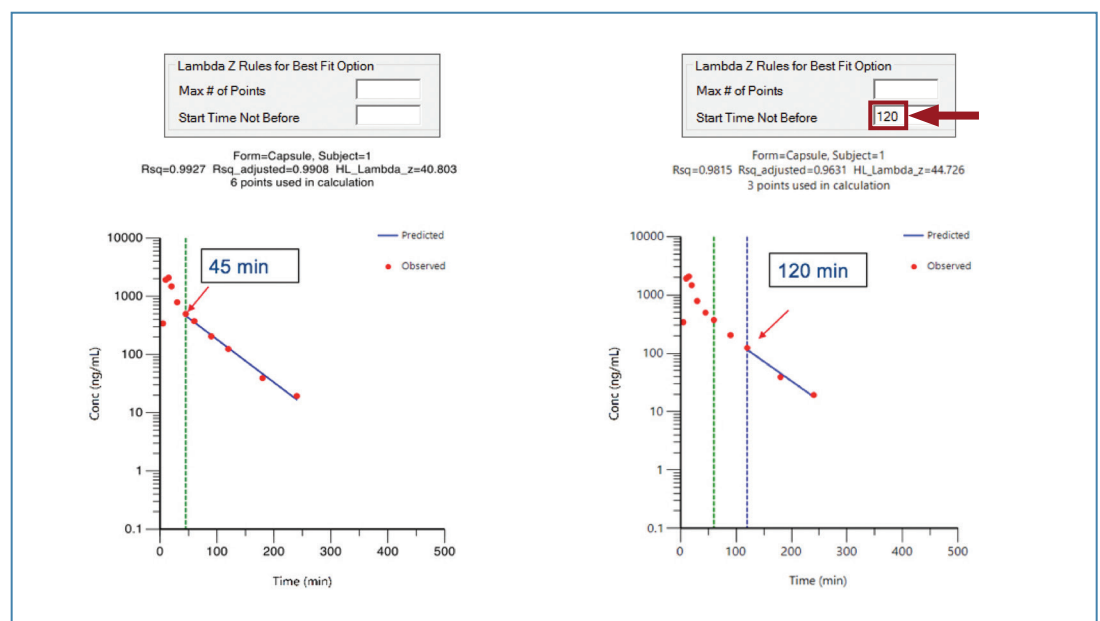
Significantly Faster Phoenix 8.0 Validation Suite

With the new validation suite being integrated into Phoenix 8.0, there is no wait to validate your Phoenix WinNonlin 8.0 implementation, and no need to install a separate application. The average run time for the validation suite takes less than 30 minutes, significantly less than other validation options, which can take days. During execution of the validation suite, other applications can still be run and used, resulting in minimal down-time. After the validation suite has finished executing, it documents confirmation of reference results, and the results are saved as a Microsoft Word document and immediately available in Phoenix 8.0 for easy reference.

New Phoenix 8.0 Validation Suite Integrated into Phoenix at Launch
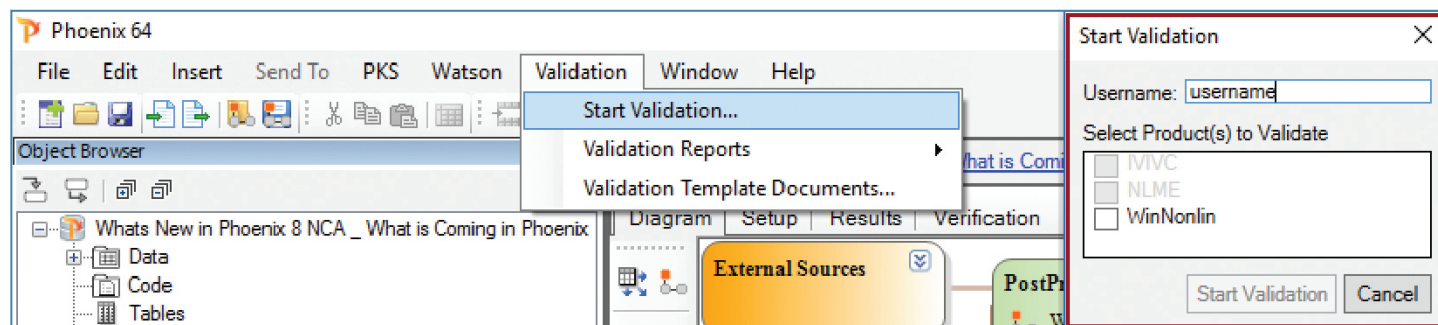
## Automatic Parallelization with Phoenix NLME 8.0

Phoenix NLME 8.0 features parallelization for all run modes and the ability to run on powerful remote compute platforms, reducing run times from days to minutes. The automatic algorithm uses the maximum number of cores for each run to minimize run times without any user intervention for:

- Simple run with or without sort variable

- Scenarios run with or without sort variable

- Covariate search stepwise

- Covariate search shotgun

- Bootstrap

- Profile

Users can disconnect and reconnect to running jobs and view interim run results to catch and fix any mistakes. Pair Phoenix NLME with Certara's Burstable Compute Grid, which offers access to up to 1,800 cores with just one click, accelerating model runs affordably and without IT support.

Phoenix NLME Parallelization Example: Log-likelihood Profiling (360 cores, 10 perturbations, 300 subjects and no sort keys)

The total number of models (n) equals (# perturbations + 1) multiplied by the number of sort keys. The automatic algorithm runs 11 models in parallel with 32 cores each.

| 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 8 |
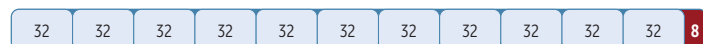
## Distributed Delay Function for Modeling Delayed Outcomes

With the new distributed delay function integrated into Phoenix NLME 8.0, users can easily model delayed outcomes in therapeutic areas such as oncology, diabetes, and arthritis. This simplifies coding delays in PK/PD models and can be used in place of transit compartments, dual absorption models, effect compartment models, and indirect response models.

Enhancements to Phoenix Workbench

These new advances in the Phoenix Workbench not only make it easier to conduct PK/PD analysis but also helps to reduce errors.

- Load and save object settings with one click and create a library of settings for each operational object; users can also add, remove, share, or rename saved settings

- Lock Phoenix workflows with a password to prevent any changes and for quality control, simplifying QC/QA efforts for Phoenix templates; locked workflows can be executed but not modified

- Conveniently install and activate licenses within Phoenix 8.0 without having to use another application

Load and Save Object Settings
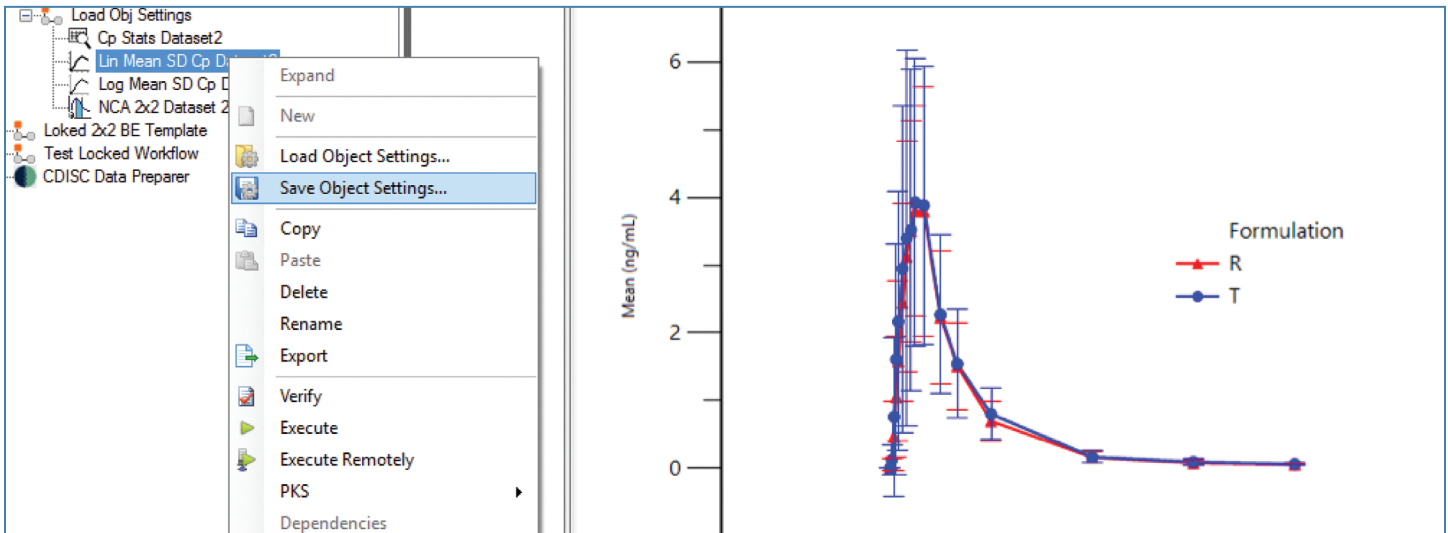
Locking Workflows with a Password in Phoenix 8.0
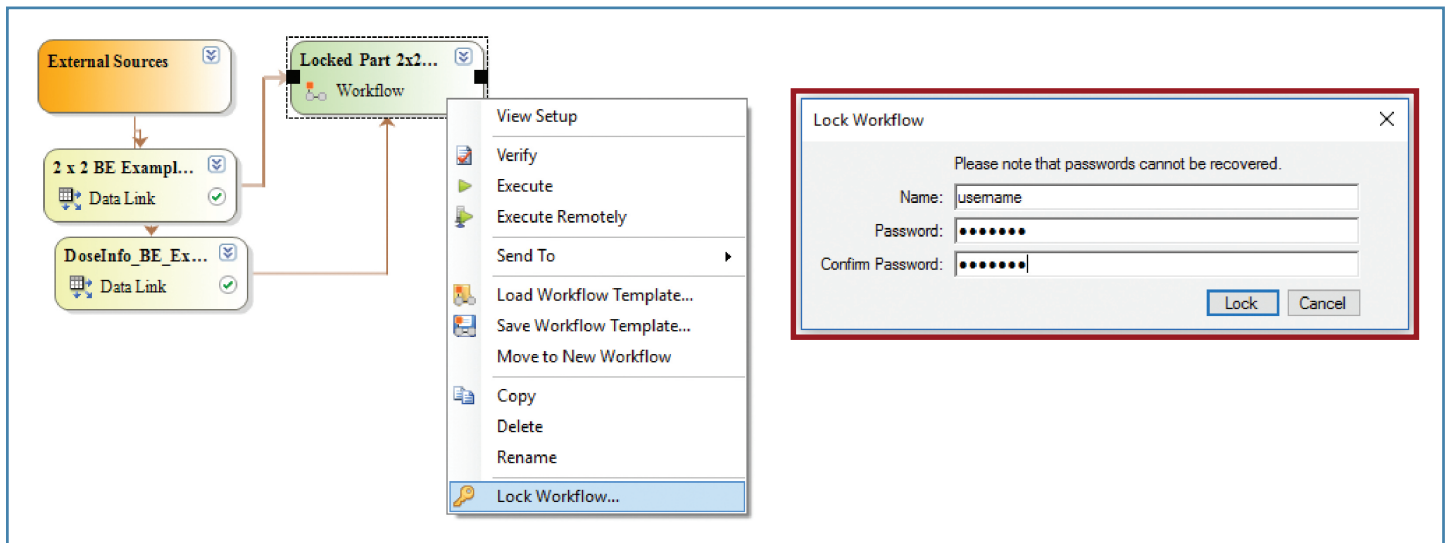
Are you ready to get the most out of Phoenix 8.0?

To experience all of the new features and enhancements in Phoenix 8.0 to streamline your PK/PD analyses, contact us at sales@certara.com.

About Certara

Certara is a leading provider of decision support technology and consulting services for optimizing drug development and improving health outcomes. Certara's solutions, which span the drug development and patient care lifecycle, help increase the probability of regulatory and commercial success by using the most scientifically advanced modeling and simulation technologies and regulatory strategies. Its clients include hundreds of global biopharmaceutical companies, leading academic institutions and key regulatory agencies.

For more information visit www.certara.com or email sales@certara.com.