

EViews 6 Getting Started



Quantitative Micro Software

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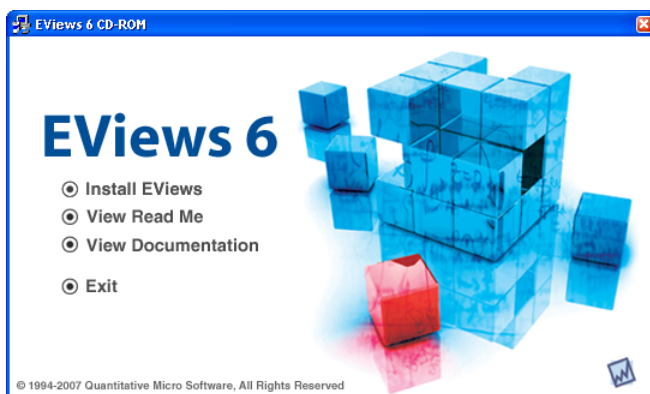
Getting Started

Congratulations on your purchase of EViews 6, the premier forecasting and analysis package for Windows-based computers. This guide will lead you step-by-step through the installation and registration procedure for EViews 6.

Installing EViews

Your copy of EViews 6 is distributed on a single CD-ROM. The installation of the software and supporting files is straightforward— first close all other applications, then simply insert your CD into your computer's drive and wait briefly while the disc spins up and the setup program launches. If the CD does not spin-up on its own, navigate to the CD drive using Windows Explorer, then click on the Setup icon (AUTORUN.EXE).

When the installer opens, the EViews 6 installation screen is displayed, providing you with several options for how to proceed. You may close this window at any time by clicking on **Exit**, by clicking on the **Close Window** box in the upper right-hand corner of the window, or by double clicking on the icon to the left of "EViews 6 CD-ROM" in the title bar.



You should first click on **View Read Me** to view any last minute changes in the installation or operating instructions. Once you have done so, you are ready to perform the actual installation of the EViews software and documentation.

To start the installation process, simply click on **Install EViews** and follow the instructions. You will be prompted to read and accept the License Agreement, and to designate a directory into which you wish to install your copy of EViews. By default, EViews will install into "\Program Files\EViews 6" ("\Program Files (x86)\EViews 6" on a 64-bit Windows system). If you wish to change the EViews install directory, click on **Browse** and navigate to the desired directory. Click on **Next** to continue.

You will now be asked to enter a name and serial number. Your 24-character serial number should be found on the back of your CD-ROM case. Those of you who have obtained your copy of EViews as part of a Volume License agreement will receive a serial number from your license administrator. Enter the number, your name, as you wish it to appear in your copy of EViews, and click on **Next**.

In the next screen, select the components you wish to install and click on **Next**. Lastly, you will be asked about setting up a **Start Menu** folder containing shortcuts for running EViews. Clicking on **Next** starts the actual installation.

You should be aware that as part of the installation procedure, EViews will prompt you to register files containing the extensions .WF1, .PRG and .EDB. If these extensions are already registered (possibly by an earlier version of EViews), you will be prompted to allow EViews 6 to override the existing registration. Registering the extensions will allow you to double-click on files with these extensions to launch EViews 6.

Finally, EViews will also ask you whether you wish to create shortcuts to the EViews example files folder and the EViews program executable.

Once the installation procedure is completed, click on **Finish**. The EViews Start Menu folder will open. To launch EViews, simply double-click on the EViews 6 icon. In the future, you may launch EViews using the shortcut on your desktop, if one is present, or by selecting EViews from the Windows Start Menu.

Registering EViews

(The following discussion describes the registration process for single user copies of EViews and seat licenses purchased under a Volume License Program. Setting up machines to use concurrent use licenses will require a different procedure; for details, please check with your IT support department.)

What is Registration?

In order to use EViews 6 on a specific computer, you must first register your copy on the machine using the serial number printed on your CD-ROM case or obtained from your license administrator. EViews registration is the one-time process of assigning a serial number to a specific machine, and sending a unique machine ID number to QMS. This is a simple process that can be performed in a few seconds.

The first time EViews is run on a new machine, you will be prompted to register the machine. You may choose to do so immediately, or you can put off registration to a later date, but you must register the machine within 30 days of installation. If you delay registration, you will be prompted to register the machine every time you launch EViews. After 30 days, the unregistered copy of EViews will no longer run.

The EViews single user and standalone licenses allow for an individual to have exclusive use of copies of EViews residing on multiple machines, or for multiple users to have access to a copy of EViews residing on a single machine. For example, a single user may install and register EViews on his or her office computer, home computer and a laptop computer, provided that the use of EViews is exclusive. Note, however, that the license terms do not allow two users to share two copies of the same license of EViews residing on two machines.

To facilitate the legitimate use of EViews on multiple machines, we allow each EViews single user serial number (one beginning with “60A”) or standalone serial number (one beginning with “60S”) to be used in registering up to three machines. If you have exceptional circumstances which require registration on additional machines, please contact our office.

Note that under the terms of the EViews Volume License agreement, “60C” (volume) license serial numbers may not be used to register multiple machines. Each volume licensed machine running EViews must be assigned a distinct serial number. In particular, licensing an office computer, home computer and laptop computer of a single user will require registration using three separate serial numbers.

Once registered on a given machine, EViews 6 will run indefinitely. The copy of EViews may be uninstalled and reinstalled on a registered machine, updated, or moved to a different directory as desired without reregistering the copy for that machine. In the special case where a machine’s hard disk is wiped clean, but no other changes are made to the system, you may simply reregister your copy of EViews. Note that in this circumstance, reregistration on the machine will *not* count as an additional registration.

If, however, an entire machine or a machine’s hard disk is replaced, you should contact us to unregister your previous installation prior to reregistering.

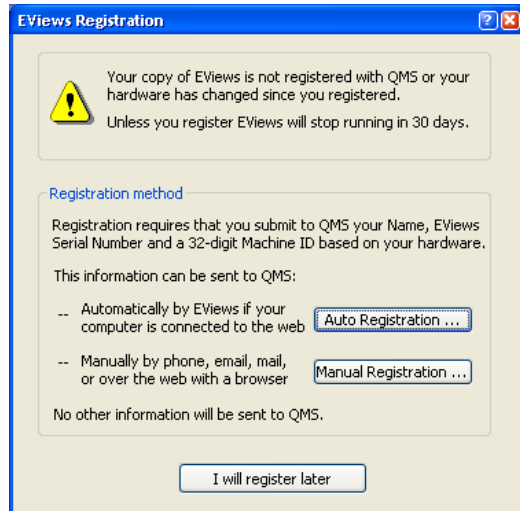
How Do I Register?

Before starting the registration process, you should first locate the EViews serial number that is attached to the case of your EViews CD-ROM. You will need to enter this number into your computer during the registration procedure.

Next, you should launch EViews by double-clicking on the EViews icon. If the copy of EViews is not registered for the machine, EViews will open a dialog, informing you that your copy of EViews is not registered for this machine, displaying the number of additional days your unregistered copy will continue to run, and providing you with three options for proceeding.

First, you can choose to delay registration by clicking on the **I will register later** button. If you select this option, EViews will close the dialog and will operate in the usual fashion. You can use your copy of EViews just as though it were a fully registered copy until the grace period has expired. Once the grace period has expired, your copy of EViews will not run until it is registered.

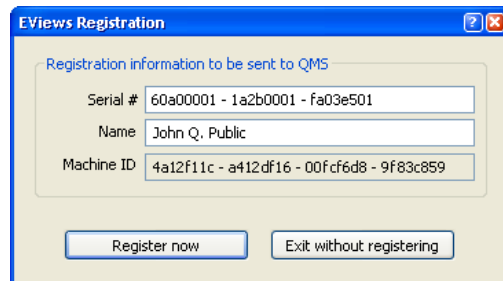
Alternatively, you can choose to register in one of two ways: you can use the EViews auto registration features (by clicking on **Auto Registration**), or you can manually register (by clicking on **Manual Registration**). Selecting either of the latter two options will open a dialog prompting you for additional information.



Auto Registration

If your computer is connected to the Internet, the EViews auto registration features should make registration a snap. Simply click on the **Auto Registration...** button to open a dialog containing the registration information.

EViews will fill out as many fields in this dialog as possible. If you wish to continue with the auto registration, first make sure that the **Serial #** and **Name** information are correct. Then, to complete the registration process, click on the **Register now** button. EViews will try to contact one of our registration servers. Once contacted, the information contained in the dialog will be sent to the server, and the machine will be registered to run EViews. If successful, you will see a message indicating that registration was successfully completed, along with the number of machines that have been registered to the serial number.



If you do not wish to continue with the auto registration, click on the **Exit without registering** button and you will be returned to the main registration screen.

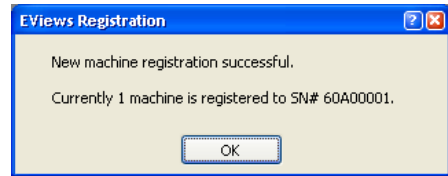
Note that there are some common reasons that auto registration may fail. First, auto registration will obviously not work if the computer is not connected to the Internet. If, for example, you have a dial-up connection, you should make certain that the connection is established prior

to attempting to auto register. Second, your computer may be behind a firewall which does not allow the required communication between your computer and our servers. Furthermore, while unlikely, it is possible that all of our registration servers may temporarily be down.

If you have problems with auto registration, you may wish to try again at a later time. Note that you can run your copy of EViews on an unregistered machine for up to 30 days from the time of installation. Alternatively, you can choose to register manually as described in the next section.

Manual Registration

If auto registration fails or if you prefer not to use the automatic registration features, you can choose to register manually. From the main registration page, click on **Manual Registration...** to open the manual registration dialog.



 A screenshot of the 'EViews Registration' dialog box in its manual registration mode. The title bar is blue with the text 'EViews Registration' and standard window controls. The main area has a light beige background. At the top, under the 'Instructions' tab, it says: 'To register you must get a Registration Key by one of the following' followed by a numbered list of four methods. Method 1 includes a link 'Go to www.eviews.com/register'. Method 4 lists the address: 'Quantitative Micro Software, Attn: Registration, 4521 Campus Drive, #336, Irvine, CA 92612'. Below the instructions are three input fields: 'User Information: Serial #' with the value '60a00001 - 1a2b0001 - fa03e501', 'Name' with the value 'John Q. Public', and 'Machine ID' with the value '4a12f11c - a412df16 - 00fcf6d8 - 9f83c859'. Below these fields is a section 'Enter the Registration Key:' with six empty input boxes. At the bottom are two buttons: 'Register now' and 'Exit without registering'.

In the dialog you will have to fill in three fields: the 24-character serial number, your name, and the 36-character registration key.

As described in the dialog, there are four ways to acquire the registration key: web browser, email, phone, or standard mail.

The easiest method is via web browser. If you have access to any machine that is connected to the Internet with a browser, simply go to

<http://www.eviews.com/register/>

which will direct you to our registration servers. Follow the links to the registration page, and fill in the form. You will need to enter your name, serial number, and the machine ID number as displayed in the registration dialog. If your information is entered correctly, you will be provided with a 36-character registration key.

If you do not have access to a working web browser, you can contact our office via email, phone, or standard post:

Quantitative Micro Software

Attn: Registration

4521 Campus Drive, #336

Irvine, CA 92612

Email: register@eviews.com

Phone: 949-856-3368

Please provide your name, full 24-character serial number, and the machine ID number. We will then be able to provide you with the 36-character registration key.

Once you have obtained the key, simply return to the registration dialog in EViews by reopening EViews or by selecting **Help/EViews Registration...** from the main menu of a running copy of EViews. Select **Individual/Seat licensing** in the **Registration type** dialog click on **OK** to display the registration page.

Enter your name and serial number *exactly* as provided earlier, select the **Key obtained by phone or browser** radio button, enter the key in the registration key box, and click **OK** to finish the registration process.

If you have obtained the key via web browser or email, you should be able to copy-and-paste the information into the dialog edit fields.

If all of the information is entered correctly, you will be informed that your registration is complete.

Contact Information

Once registration is completed, either automatically or manually, EViews will display a contact page form. You may optionally fill in this form to send name, address, phone number,

and email information to QMS. This information is for our records only and will not be redistributed to others.

Frequently Asked Questions about Registration

While the registration procedure should be easy and straightforward, the following are answers to the most frequently asked questions:

- *What if my EViews is about to expire and I can't register?*

As is common with other programs which require registration, we provide a lengthy 30-day grace period for registering copies of EViews installed on a new machine. Furthermore, each time you run EViews, you will be given the opportunity to register your copy using one of several methods. We do not anticipate that you will have any problems registering your copy of EViews in the allotted time. Please feel free to contact our office if you have any difficulties.

- *I contacted you and received a key, but the key seems to be incorrect. What could be wrong?*

One common problem results from entering a name which does not match the key. You should make certain that the name and serial number both match those provided when obtaining a key. Note that while the names are not case-sensitive, they should otherwise be entered exactly as originally provided. If you still experience problems, do not hesitate to contact our office.

- *My copy of EViews does not appear to have the correct features. Do you have to send me a new CD-ROM?*

No. Simply contact our office. Once we verify the version of EViews that you have purchased, you should be able to reregister and upgrade your copy.

- *I've replaced my computers and no longer have any unused registrations available. What should I do?*

If there are special circumstances where you need to register an additional machine, please contact our office.

- *How do I change the name in which my copy is registered?*

Your copy of EViews contains the name in which it was first registered. If you wish to change the registration name, please contact our office.

- *How do I find my serial number and other information about my copy of EViews?*

Your copy of EViews contains information about your registration status, as well as the product version and build date of the program. To obtain this information, simply select **Help/About EViews** from the main EViews menu.

Updating Your Copy of EViews

From time to time, we will post updates to your EViews 6 software on our website:

<http://www.eviews.com>

Follow the links to the downloads area.

Downloading updates will not require reregistration of EViews on any previously registered computer. Simply download the update and you will have the latest shipping copy of your software.

If, however, you wish to upgrade your copy of EViews from Standard to Enterprise, you will need to reregister your machines. Simply contact our office to purchase the upgrade. You will be asked to reregister; once reregistration is completed, you will have access to the additional features. As before, you may register automatically or manually via the web, phone, email, or standard post.

If you wish to register manually, you will be provided with a new 36-character registration key. Select the **Help/EViews Registration** menu item from within EViews. Enter your name, serial number and registration key information in the dialog. Upon successful reregistration, your copy of EViews will be upgraded to include the new features. You may verify your current product status by selecting **Help/About EViews** from the main EViews menu.

What's New in EViews 6

EViews 6 offers a number of enhancements and refinements over its immediate predecessor, EViews 5.1. The following is a brief summary of the most important new features in EViews 6.

Improved Performance

You will find that EViews 6 is significantly faster in day-to-day operation. In particular, nonlinear estimation, model solution, and other operations involving evaluation of series expressions should all be significantly faster since EViews now compiles expressions to native machine code. See [“Advanced System Options” on page 770](#) of the *User's Guide I*.

Increased Capacity

Using Windows XP with the 3G switch, Vista, or 64-bit XP or Vista, data capacity can be up to two and one-half times as large as under EViews 5.1 See [“Advanced System Options” on page 770](#) of the *User's Guide I*.

New Econometric and Statistical Features

Garch Estimation

EViews 6 features estimation of multivariate GARCH models as well as expanded support for estimation of specialized univariate GARCH specifications.

Analytic Derivatives

Analytic derivatives are available for a subset of GARCH specifications (see [“Derivative Methods” on page 192](#) of the *User's Guide II* for a discussion).

Multivariate GARCH Estimation

EViews 6 now estimates multivariate GARCH models, with support for the most popular multivariate specifications: Conditional Constant Correlation, the Diagonal VECH and (indirectly) the Diagonal BEKK. You may estimate the model assuming multivariate normal or multivariate t -distribution errors.

Once estimated, you may examine the fitted conditional covariances, variances, and correlations and save results to your workfile. In addition, you may perform residuals tests on the raw or standardized residuals, where the latter may be computed using various standardization methods.

See [Chapter 33. “System Estimation,” on page 307](#) of *User's Guide II* and [System::arch \(p. 479\)](#) in the *Command Reference*.

Univariate GARCH Estimation

EViews 6 now allows users to estimate integrated GARCH models, constraining the persistent parameters of GARCH model to sum up to unity. The constant term in a GARCH model can be restricted, or the variance targeted, so that the long run variance of the model equals to the sample variance of the data. Users may now choose the weight when backcasting is used to calculate the pre-sample variance.

See [Chapter 29. “ARCH and GARCH Estimation,” on page 185](#) of the *User's Guide II* and [Equation::arch \(p. 31\)](#) and [arch \(p. 680\)](#) in the *Command Reference*.

Quantile Regression

EViews 6 equations support the estimation of linear quantile regression specifications (Koenker, 2005). Quantile regression models the conditional quantiles of the distribution of a random variable instead of the more commonly analyzed conditional mean or conditional variances. Among the special cases of quantile regression is least absolute deviations estimation (LAD) in which one models the conditional median of the dependent variable.

Asymptotic covariance matrices for the quantile regression estimates may be calculated directly, assuming *i.i.d.* errors or Huber's Sandwich methods for non-identical data, or using various forms of the bootstrap (residual, XY-pair, Markov Chain Marginal Bootstrap, (MCMB), or MCMB-A). For the direct methods, the sparsity (quantile density) function must be estimated at a point or for every observation in the sample. EViews supports Siddiqui difference quotient and kernel methods for estimating these nuisance values.

Once estimated, you may examine goodness-of-fit measures and residuals, and perform Wald and quasi-likelihood ratio tests. Specialized test permit you to test for slope equality across quantile estimates (Koenker and Bassett, 1982), or to test for symmetry across quantile estimates (Newey and Powell, 1987). The former is often offered as a robust method for testing for heteroskedasticity in the standard least squares regression framework.

See [Chapter 31. “Quantile Regression,” on page 259](#) of the *User's Guide II*.

See also [Equation::qreg \(p. 74\)](#) and [qreg \(p. 764\)](#), and [Equation::qrprocess \(p. 76\)](#), [Equation::qrslope \(p. 78\)](#), and [Equation::qrsymm \(p. 79\)](#), all in the *Command Reference*.

Stepwise Regression

EViews 6 provides stepwise regression tools for variable selection in ordinary least squares models. Using stepwise regression, you may use various statistical criteria to choose some or all of the variables in your regression from a much larger set of variables.

Among the methods and criteria that EViews supports are: uni-directional-forwards, uni-directional-backwards, stepwise-forwards, stepwise backwards, swapwise-max R-squared increment, and combinatorial.

See [“Stepwise Least Squares Regression” on page 55](#) of the *User’s Guide II*, and [Equation::stepls \(p. 85\)](#) and [stepls \(p. 786\)](#) in the *Command Reference*.

Binary, Count, Censored, Ordered Specifications

The binary, count, censored, and ordered equation estimation methods now permit you to specification your equation by expression (instead of restricting you to providing a list). This flexibility allows you to construct non-linear index specifications, or models with coefficient restrictions.

Expanded Heteroskedasticity Testing

In addition to the previously supported ARCH-LM, and White (1980) heteroskedasticity tests, EViews now supports the Breusch-Pagan-Godfrey test (Breusch-Pagan, 1979; Godfrey, 1978), as well as heteroskedasticity tests proposed by Harvey (1976) and Glejser (1969).

Perhaps most importantly, EViews makes it easy to specify custom tests in which you test against departures from the homoskedastic null in a number of directions (say, by combining a White and Breusch-Pagan-Godfrey test).

See [“Heteroskedasticity Tests” on page 156](#) of the *User’s Guide II* and [Equation::hetttest \(p. 59\)](#) in the *Command Reference*.

Breakpoint Tests

EViews 6 offers the Quandt-Andrews Breakpoint Test (Andrews 1993 and Andrews and Ploberger 1994) which tests for one or more unknown structural breakpoints in an equation’s sample.

In the Quandt-Andrews test, a single Chow Breakpoint Test is performed at every observation between two dates, or observations, τ_1 and τ_2 . The k test statistics are then summarized into one test statistic for a test against the null hypothesis of no breakpoints between τ_1 and τ_2 .

In addition, EViews 6 provides an enhanced version of the Chow breakpoint test that allows the user to specify a subset of regressors to test for breakpoint equality. EViews 6 also supports the Factor breakpoint test variant which allows you to specify breakpoints using factor variables.

See [“Factor Breakpoint Test” on page 152](#), [“Chow’s Breakpoint Test” on page 165](#), [“Quandt-Andrews Breakpoint Test” on page 166](#), all in the *User’s Guide II*.

See also [Equation::facbreak](#) (p. 48), [Equation::chow](#) (p. 41), and [Equation::ubreak](#) (p. 92) in the *Command Reference*.

Panel Cointegration Tests

You may now perform cointegration tests with panel and pooled time series cross-section data using the panel cointegration statistics of Pedroni (2004), Pedroni (1999), and Kao (1999), or the Fisher-type test suggested by Maddala and Wu (1999).

See “Panel Cointegration Testing” on page 372 of the *User's Guide II* and [Group::coint](#) (p. 187) and [Pool::coint](#) (p. 300) in the *Command Reference*.

Covariance Analysis

EViews 6 expands the set of tools for computation of covariances from a group of series or from columns of a matrix.

In addition to the previously supported ordinary (Pearson) correlations and covariances, you may now compute other measures of association: Spearman rank-order, Kendall's tau-a and tau-b. In addition, EViews 6 now performs pairwise tests of zero correlation, with or without multiple comparison adjustments.

EViews 6 also allows you to calculate partial covariances and correlations for each of these general classes, to compute using balanced or pairwise designs, and to weight individual cases. In addition, you may display your results in a variety of formats and save results to the workfile for further analysis.

See “Covariance Analysis” on page 380 of *User's Guide I*. See also [Group::cor](#) (p. 190) and [Group::cor](#) (p. 190) in the *Command Reference*. (Note that the two commands may also be used with matrix and sym objects.)

Principal Components

Principal components analysis in EViews 6 has been greatly enhanced. EViews now allows you to compute the estimated correlation or covariance matrix of a group of series or columns of a matrix in a number of ways and to perform principal components on the resulting matrix.

As in EViews 5, you may display the table of eigenvalues and eigenvectors, and save component scores and loadings in the workfile.

EViews 6 now allows you to display line graphs of the ordered eigenvalues (scree plots), and examine scatterplots of the loadings and component scores (biplots). Loadings and component scores may now be computed with various weightings so that you may, for example, construct both orthonormal and eigenvalue matching scores.

See “Principal Components” on page 397 of *User’s Guide I*, and `Group::pcomp` (p. 206) and `Sym::eigen` (p. 462) in the *Command Reference*.

Factor Analysis

EViews 6 features a new factor analysis object that provides a full range of factor analysis tools, supporting everything from computing the covariance matrix from raw data all the way through the construction of factor score estimates.

Using the EViews factor object you may: (1) compute covariances, correlations, or other measure of association (if necessary); (2) specify the number of factors; (3) obtain initial uniqueness estimates; (4) extract (estimate) factor loadings and uniquenesses; (5) examine diagnostics; (5) perform factor rotation; (6) estimate factor scores.

EViews 6 offers a wide range of choices in each of these areas. You may, for example, select from a menu of automatic methods for choosing the number of factors to be retained, or you may specify an arbitrary number of factors. You may estimate your model using principal factors, iterated principal factors, maximum likelihood, unweighted least squares, generalized least squares, and noniterative partitioned covariance estimation (PACE). Once you obtain initial estimates, rotations may be performed using any of more than 30 orthogonal and oblique methods, and factor scores may be estimated in more than a dozen ways.

See Chapter 40. “Factor Analysis,” on page 579 of *User’s Guide I* and “Factor” (p. 97) in the *Command Reference*.

Mean Equality Tests

EViews now performs mean equality tests both under the standard maintained assumption of equal variances across subgroups, and under the assumption that the variances are heteroskedastic (Welch 1951, Satterthwaite 1946).

See “Mean Equality Test” on page 315 of *User’s Guide I* and `Series::statby` (p. 387) and `Group::testbtw` (p. 218) in the *Command Reference*.

Model Solution

EViews 6 model solution may be up to 30 times faster than under EViews 5.1. Among the improvements:

- A new solution algorithm, Broyden’s, has been added to models. Broyden’s method is a quasi-Newton method that uses a secant approximation to the Jacobian instead of the true Jacobian when solving for the Newton step. The method has many of the desirable properties of Newton’s method without requiring the Jacobian to be reevaluated and factored at each step.

- The model solver can now reorder equations within simultaneous blocks so that a set of variables in the block can be solved for recursively conditional on the values of the remaining variables in the block. This structure is used by the Newton and Broyden solution algorithms to substantially reduce the time required to solve models consisting of large sparse systems of equations.

See “[Solver](#),” beginning on page 447 of *User's Guide I* and `Model::solveopt` (p. 288) in the *Command Reference*.

Other improvements in the model engine provide tools for stochastic simulation and endogenous variable exclusion:

- Stochastic simulations can now be based on bootstrapped residuals as an alternative to normally distributed random numbers. Bootstrapped residuals can be drawn independently for each equation, or can be drawn from the same period across all equations.
- The complete set of results from each repetition of a stochastic simulation can now be saved as a new page in the workfile.
- Equations for endogenous variables can now be excluded from the model (treated as exogenous variables) automatically based on whether actual values are available for the variable in each period. This makes it easy to perform forecasts using all available data when some series may be obtained more quickly than others.

See “[Stochastic Options](#),” beginning on page 442 of *User's Guide I* and `Model::stochastic` (p. 290) and `Model::exclude` (p. 277) in the *Command Reference*.

Graphics

We have completely revamped our graphics engine, allowing you greater control over the display of data, and supporting the easy construction of categorical and other custom graphs.

Basic Graphs

- Includes new basic graph types including: Dot plot, Area Band. See “[Graph Types](#),” beginning on page 449 of *User's Guide I*. See also “[Graph Creation Command Summary](#),” on page 601 of the *Command Reference*.
- EViews 6 offers a number of new univariate statistical graphs: histograms with options for controlling bins, frequency polygons, histogram edge polygons, average shifted histograms, fitted theoretical distribution plots (*e.g.*, a normal density fit to sample data), empirical log survivor plots, confidence ellipses. See “[Analytical Graph Types](#)” on page 462 of *User's Guide I*. See also “[Graph Creation Command Summary](#),” on page 601 of the *Command Reference*.

- EViews 6 now supports line graphs containing mixed frequency data. See [“Mixed Frequency Graphs” on page 431](#) of *User’s Guide I*.
- New options provide you with additional control over the display of graphs in panel data workfiles. See [“Panel Options” on page 424](#) of *User’s Guide I*. See also the options for individual commands, e.g., [“Panel options,” on page 605](#) of the *Command Reference* (for the `area` command)

Categorical Graphs

Categorical graph tools allow you to construct graphs using various subsets of the data, where the subsets are defined using the values of one or more categorical conditioning variables. Using these tools, you may perform complex tasks such as:

- Displaying a bar plot comparing the mean incomes of individuals living in each state.
- Producing a scatterplot of wages and hours worked, where the subset of males is drawn using one plotting symbol, and the subset of females uses a different symbol.
- Showing wage–education profiles for both male and female workers.
- Drawing histograms and boxplots of wages for union and non-union workers in different industries.

See [Chapter 14. “Categorical Graphs,” on page 491](#) of *User’s Guide I* and [“Categorical Spec,” on page 668](#) of the *Command Reference*.

Custom Graphs

EViews 6 offers the ability to construct custom graphs using data summaries or graphs formed by combining graphs:

- Graphs of summary statistics for your data may easily be displayed (e.g., showing a bar graph of the mean values of each series in a group). See [“Graph Data” on page 431](#) of *User’s Guide I*. See also the options for individual commands, e.g., [“Graph data options,” on page 604](#) of the *Command Reference* (for the `area` command).
- Histograms, boxplots, or kernel density graphs may be displayed in the margins of observation (line, bar, scatter, etc.) graphs. See [“Axis Borders” on page 423](#) of *User’s Guide I*. See also the options for individual commands, e.g., [“Scale options,” on page 607](#) of the *Command Reference* (for the `area` command).
- In addition, statistical graphs may now be overlaid on other graphs. You may, for example, draw a kernel density and fitted normal distribution graph on top of a histogram, or you can overlay both a fitted linear regression line and a kernel regression plot on top of a scatterplot. See [“Multiple Graph Types” on page 426](#) and [“Auxiliary Graph Types” on page 480](#) of *User’s Guide I*. See also [“Auxiliary Spec,” on page 671](#), [distplot \(p. 615\)](#), and [qqplot \(p. 636\)](#) of the *Command Reference*.

Improved Customization

New customization tools allow you greater control over the graph display:

- Data may now be assigned to any axis (including bottom and top). Among other things, this allows you to produce rotated graphs. See [“Axes and Scales” on page 441](#) and [“Assigning data to an axis” on page 661](#) of *User's Guide I* and [axis](#) (p. 149) in the *Command Reference*.
- EViews 6 supports automatic character labeling of axis using the workfile structure, with optional rotation of the label. See [“Axis Labels” on page 446](#) of *User's Guide I* and [Graph::axis](#) (p. 149) in the *Command Reference*.
- You may also specify custom label elements for axes in frozen graphs. See [“Modifying the date/time axis” on page 663](#) of *User's Guide I* and [setobslabel](#) (p. 175) in the *Command Reference*.
- You may now apply fade effects to fill colors in bars and backgrounds. See [“Bar” on page 451](#) and [“Frame” on page 439](#) of *User's Guide I* and [Graph::options](#) (p. 164) in the *Command Reference*.

Added Output Formats

In addition to the previously supported Windows metafile and Postscript, graphs may now be saved as bitmaps, Graphic Interchange Format (GIF), Joint Photographics Expert Group (JPEG), or Portable Network Graphics (PNG) files.

See [“Saving Graphs to a File” on page 543](#) of *User's Guide I* and [Graph::save](#) (p. 168) in the *Command Reference*.

Output Management

EViews 6 offers a new Spool object that allows you to create a collection of various outputs. You may, for example, want to view a set of data both as a graph and in tabular form, or perhaps you wish to keep a log of output created during a program or an EViews session. Both of these tasks may be accomplished with the use of a spool object.

The EViews spool object is essentially a container that allows you to store multiple tables, graphs, text, and spools. Various management tools allow you to add, delete, extract, resize, annotate, hide and edit the objects in the spool.

See [“Spool Objects” on page 554](#) of *User's Guide I* and [“Spool”](#) (p. 409) in the *Command Reference*.

Database Support

Support has been added for direct access from within EViews Enterprise Edition to databases from Datastream (a service of Thomson Financial), Moody's Economy.Com and Fact-Set, for users who are subscribers to these services. See [“Notes on Particular Formats,” beginning on page 286](#) of *User's Guide I*.

Series imported into workfiles from a database can now maintain a link to the source database, allowing the data to be refreshed from the database each time the workfile is opened, or upon user request. The name of the linked series in the workfile can be edited independently of the name of the source series within the external database, making it easier to work with foreign data sources which use naming conventions substantially different from those allowed within EViews. See [“Fetching Objects from the Database,” beginning on page 263](#) of *User's Guide I*.

See also [copy](#) (p. 696) and [fetch](#) (p. 717) in the *Command Reference*.

New or Enhanced Functions

EViews 6 provides over 100 new series expression functions, including new sets of functions for moving statistics (e.g., `@movstdev`), cumulative statistics (e.g., `@cumstdev`), and statistics on the rows of a group (e.g., `@rmean`, which computes the mean across the series in the group), maximum likelihood and unbiased variance calculations, and ranks:

- Cumulative functions: Perform calculations on cumulative statistics from the start, or end, of the workfile. For example, `@cumsum` gives the sum of the observations from the start of the workfile up until the current observation. Forward and backward forms of these functions are supported. See [“Cumulative Statistic Functions” on page 741](#) of *User's Guide I*.
- Moving functions: A new set of moving statistic functions (e.g., `@movvar`) to complement the existing `@movav` and `@movsum`. See [“Moving Statistic Functions” on page 743](#) of *User's Guide I*.
- Group Row functions: Calculate statistics on the rows of a group. These provide across-series statistics. For example, `@rmean` will calculate the mean across series at each observation. See [“Group Row Functions” on page 748](#) of *User's Guide I*.
- Variances and covariances calculations have been extended to support using separate functions for population/maximum likelihood computation (division by n) and unbiased estimation (division by $n - 1$). See [“Descriptive Statistics” on page 738](#) of *User's Guide I*.
- Financial functions for obtaining present and future values of annuities and for related computations have been added. See [“Financial Functions” on page 737](#) of *User's Guide I*.

- `@rank`: ranking function for observations in a series – calculates the relative rank of each observation. See “[Descriptive Statistics](#)” on page 738 of *User's Guide I*.

In addition:

- Dummy variable creation: the existing `@expand` function has been enhanced so that it may be used in expressions (for example, to create a set of interaction variables). See “[Automatic Categorical Dummy Variables](#)” on page 28 of *User's Guide II* and `@expand` (p. 816) of the *Command Reference*.
- Matrix element operations: a new set of matrix functions has been provided for performing various element operations; you may use these functions to perform element-wise multiplication, division, exponentiation, and inversion. See “[Matrix Element Functions](#)” on page 840 of the *Command Reference*.
- Matrix column descriptive statistics: functions for computing descriptive statistics for columns of a matrix support are now provided. See “[Matrix Descriptive Statistics Functions](#)” on page 841 of the *Command Reference*.
- New functions allow you to start the Windows command shell or to spawn a new process. See `shell` (p. 777) and `spawn` (p. 783) in the *Command Reference*.

Miscellaneous

- Series classification tools allow you to create classification variables based on the values in a series. You may use this to create custom “binning” of series, for example, using an income series to group observations into categories using a grid of income values, marginal tax brackets, or quantiles of income. See “[Generate by Classification](#),” on page 333 of *User's Guide I*, and `Series::classify` (p. 361) in the *Command Reference*.
- Alpha series now offer a maximum length of 1,000 characters. See “[Alpha Truncation](#)” on page 769 of the *User's Guide I*.
- EViews program files may be encrypted for distribution to others in a form that may run but may not be viewed. See “[Encrypting a Program](#),” on page 594 of *User's Guide I*.
- EViews program files are now displayed with basic syntax coloring.

Compatibility Notes

The following discussion describes compability issues for EViews 6 that may be of interest to users of EViews 5.1.

Workfile Compatibility

With few exceptions, EViews 6 workfiles are backward compatible with EViews 5.1. Note that the following have been new or have been modified in Version 6, so that transporting them back into Version 5.1 or earlier may result in data loss:

- Graph objects
- Factor objects
- Spool objects
- Equation and System objects that employ new features (stepwise regression, quantile regression, univariate and multivariate ARCH) are not backward compatible.

If you save workfiles with any of the above and attempt to read them in EViews 5.1 or earlier, EViews will delete the incompatible object, and notify you of this fact. We recommend that you make a copy of any workfiles that contain these objects if you would like to use these workfiles in both Version 5 and 6 of EViews.

Forecasting in MA Models

EViews 6 supports a new method, *estimation period*, for initializing forecasts in equations with MA errors. The estimation period method uses data for the estimation sample to compute backcast estimates. This method is the default method of initializing MA forecasts for equations estimated in EViews 6.

Previously, EViews only offered a method that we term *forecast available* to initialize forecasts in MA equations. The forecast available method offers different approaches for dynamic and static forecasting:

- For dynamic forecasting, EViews applies the backcasting procedure using data from the beginning of the estimation sample to either the beginning of the forecast period, or the end of the estimation sample, whichever comes first.
- For static forecasting, the backcasting procedure uses data from the beginning of the estimation sample to the end of the forecast period.

Note that the method does not guarantee that the pre-sample forecast innovations match those employed in estimation.

You may obtain the previous forecast initialization using the dialog or options (for equation forecasting), and by editing the equation specification (in model forecasting).

See “Forecasting with MA Errors” on page 128 and “Models Containing MA Terms” on page 438 of the *User’s Guide II* and `Equation::forecast` (p. 52) in the *Command Reference*.

White Heteroskedasticity Test

There have been a couple of changes to the White heteroskedasticity test:

- First, in equations specified by expression, EViews 5.1 used the underlying variables on the right-hand side of the specification to form the auxiliary regressors. This approach may be used to construct a valid heteroskedasticity test, but one which differs from the original information matrix formulation. By default, EViews 6 uses the gradients of the equation at the estimated values to construct the auxiliary regression. You may use options to obtain the earlier form of the test.
- Second, when estimating a White heteroskedasticity test, EViews 5.1 always included terms for the levels of the original regressor in the auxiliary regression, even if the equation did not include a constant term. This yields a valid heteroskedasticity test, though it differs somewhat from the information matrix test form. By default, EViews 6 only uses the squares (and cross-products if requested) of the original regressors or gradients in the auxiliary regression. You may use options to obtain the previous form of the test.

See “White's Heteroskedasticity Test” on [page 158](#) of the *User's Guide II* and [Equation::hetttest](#) (p. 59) in the *Command Reference*.

CDF, Survivor and Quantile Plot Confidence Intervals

We have changed the method of computing confidence intervals in CDF, survivor, and quantile graph plots. The new methods construct intervals that are based on the Wilson interval methodology (Wilson, 1927; Brown, Cai and Dasgupta, 2001). See “[Empirical CDF](#)” on [page 473](#) of the *User's Guide I*.

This approach is computationally more efficient (especially for large numbers of observations), and has other desirable properties.

Distribution Graph Output

With the revision of the graphics engine, several graphics procedures have been eliminated (`cdfplot`, `kdensity`, `nnfit`, `kernfit`, `linefit`) and replaced with alternative commands. One consequence of this change has been the elimination of support for saving the data from these procedures in the workfile.

