

Highlights of version 5.60

- **Multithreaded GDI (graphics) rendering** - now all drawing (graphic rendering) is done in separate worker threads so the user interface is way more responsive and charts are updated faster and completely independently from each other.
- **Automatic Walk-Forward out-of-sample summary report** - each out-of-sample step produces individual report now, plus there is a new **summary report** that covers all out-of-sample steps. It is visible in the Report Explorer as last one and has "PS" type.
- **Enhanced color-coded backtest report**
- **XY (scatter) charts in explorations**
- **Chart themes** and improved chart look (esp. the grid)
- **One-click automatic setup and update of stocks listing, sector and industry assignments** for all major US exchanges
- **Unlimited ad-hoc chart intervals** by means of new Interval combo box that accepts any interval typed manually
- **support for ICB** (Industry Classification Benchmark) categories in AFL, UI, ASCII importer and OLE interface
- native **Gradient area charts**
- **super-thick lines** in Plot, PlotOHLC, PlotForeign
- **new AFL functions**: GetAsyncKeyState, InIcb, IcbID, StaticVarInfo, SetGradientFill, XYChartAddPoint, XYChartSetAxis
- **updated AFL functions** with new functionality: Status, CategoryGetSymbols, CategoryGetName, CategorySetName, CategoryAddSymbol, CategoryRemoveSymbol, CategoryFind, Plot, PlotOHLC, PlotForeign
- new 64-bit eSignal plugin
- updated UI in many places
- many other improvements (see Release Notes for details)

CHANGES FOR VERSION 5.60.3 (as compared to 5.60.2), Official Release

- When custom backtest formula was defined in separate file then report "Formula" tab shown CBT formula instead of actual system formula. Fixed.
- New Analysis, when Apply to was set to "Current" then changing current symbol during optimization affected results. Fixed
- New Analysis, database's time shift was applied twice in "Show current trade arrows" mode. Fixed.
- Custom backtest procedure was not called when number of trades was equal zero (no trades at all). This prevented creation of custom metrics in such case. Now CBT code is called anyway.
- 3D optimization chart was corrupted when optimization included custom metrics. Fixed.
- Corrections and updates to Users' Guide

CHANGES FOR VERSION 5.60.2 (as compared to 5.60.1)

- Setup: GICS.txt file had 50102010 category incorrectly entered (without new line). Fixed.
- Setup: Formats\aqgi.format file added
- Scale in/out column could have thousand separator added in incorrect place. Fixed.
- New Analysis: when there was no selected formula file a number of empty items were added to the combo box. Fixed.
- New Analysis: Walk-forward summary report name and from date was not reset in second and subsequent runs in the same Analysis window. Fixed.
- New Analysis: if symbol did not have any quotes at all, "wait for backfill" did not wait. Fixed.
- New Analysis: Exploration - a little speed up by decreased number of string reallocations in CAnalysisExploreJob::Run
- Inactive Web research window did not sync with selected symbol when "sync always" was turned on. Fixed. MG #113
- Filter dialog background change did not look nice on Windows XP and earlier. Turned this off in pre-Vista OSes.
- eSignal: in "EOD" mode when started outside trading session a last bar could be duplicate of previous day bar. Fixed
- eSignal: 64-bit plugin now correctly downloads daily (EOD) history (so mixed mode works fine too).
- eSignal plugin: added support for extended intraday (to enable it use Configure: "Use extended intraday history data request")
- Due to Windows "feature" dotted lines with width of 1 were printed as solid lines on a printer. Workaround (forcing width to 0) for printer implemented.
- Default black chart theme is only set when no preferences file is found. If broker.prefs exists but it is stored in pre-5.52 version then white scheme is applied by default.
- Charts: when loading multiple chart layout the invisible/obscured windows were not always scrolled to the end (most recent quote). Fixed.
- Auto-hidden Analysis windows sometimes did not repaint properly. Fixed.
- Sharpe ratio now uses floating point trade length/qty ratio instead of integer to prevent rounding.
- AFL: Now OLE strings passed by reference (VT_BSTR|VT_BYREF) are accepted too.

CHANGES FOR VERSION 5.60.1 (as compared to 5.60.0)

- New Analysis: when OoS test was turned OFF in advanced Walk Forward mode, it would crash at the end attempting to create summary out of non-existing out-of-sample tests. Fixed.
- New Analysis: Walk-forward combined OoS equity is just concatenation of OoS steps and no scaling is applied anymore. This is little faster and prevents some boundary/roundoff conditions.
- Inactive tab text color is now fixed RGB (#656565) instead of querying system COLOR_GRAYTEXT as it is too light on XP.
If you want inactive tab text to be completely black, then create registry key
HKEY_CURRENT_USER\Software\TJP\Broker\Settings\InactiveTabTextColor
with DWORD value of 0 (zero)

Instead of black (0) you may use any other RGB value of course
[HKEY_CURRENT_USER\Software\TJP\Broker\Settings]
"InactiveTabTextColor"=dword:00000000

- In 5.58 and above Study() only worked in indicators, and always referred to current chart ID. It did not work in Analysis. Fixed.
- ASCII import: ASCII characters above code 127 are not trimmed from the end of strings anymore.

CHANGES FOR VERSION 5.60.0 (as compared to 5.59.0)

- Upgrade information: keys issued before 2011-04-13 are expired with 5.60
- UI: removed unused options from Prefs/Miscellaneous page
- UI: In 5.59 ticker box was not in sync with currently selected symbol on loading single-chart layout. Fixed
- UI: importing custom icon image using Tools->Customize, button RMB -> Edit Image -> Import image caused change of current working directory. Now CWD is saved and restored after customization.
- UI: Floating panes use themed frames now
- UI: Filter settings dialog is resizable now (and static fields use proper background color)
- UI: Crash could occur if the user customized Tools menu by moving "Update US stock list..." item from the very last position in the menu elsewhere. Fixed.
- UI: cosmetic color changes (chart sheet tabs)
- On attempt to close Analysis window that is currently running scan/exploration/backtest an appropriate error message is displayed.
- New Analysis: the message "No symbols matched apply to / filtering criteria" shows up in the message bar instead of dialog, so one does not need to click OK
- New Analysis: Specifying ReEntryDelay > 0 in ApplyStop rotational and raw modes caused incorrect results in second and subsequent backtests (MG#79). Fixed.
- New Analysis: In 5.59 3D optimization chart - wrong 2nd axis legend was wrong (duplicate of 1st axis). Fixed.
- New Analysis: In 5.58 and 5.59 smart optimizer engine was not finalized properly when user pressed "Cancel" during optimize run. Fixed.
- New Analysis: error message bar text is now trimmed to 110 characters to ensure there is a place for the "Details" button
- In colorCycle sequence colorRed is replaced with colorLightOrange for better visibility when displayed with red candles
- In 5.58 View->Intraday->Tick turned incorrect "0-tick" interval which resulted in effective 1-second compression. Fixed.
- colorDefault is now user- definable in the preferences (Colors tab) and selectable from Parameters window and associated with chart theme
- Charts: Print Preview and printout had incorrect colors due to the fact that SetDCPenColor/SetDCBrushColor APIs do not work with metafiles/printers. Fixed.
- Charts: In 5.59 chart could stop refreshing when it had odd number of Plot() calls combined with a couple of PlotForeign() calls and total number of items to display in tooltip/data window exceeded 20. Fixed.
- Changed default Price all in one volume to color to ColorBlend(ColorRGB(128, 128, 192), GetChartBkColor(), 0.5)),
- Changed default colors for charts to "Black" scheme and outline mode to "One color for entire handle and hollow up candle body"
- Changed default chart layout for clean installation
- Changed default appearance to VS2010 / pane tabs on bottom
- Changed Bollinger band filled default color to ColorBlend(Color, GetChartBkColor(), 0.8)
- changed all price formulas shipped in setup to use colorDefault instead of colorBlack
- Blank chart panes now use defined chart background color instead of white
- Background of built-in dark grey theme made slightly lighter than black
- ASCII import: sector names beginning with "Sector" and industry names beginning with "Industry" were not imported properly. Fixed.
- aqh.format, aqd.format, aqg.format changed - removed \$VOLFACTOR 0.01 previously used so volume is reported in shares not in hundreds of shares
- ApplyStop(stopTypeNBar, ...) in backtestRegularRaw / backtestRegularRawMulti/Rotational - N-bar stop exited 1 bar later than in regular mode. Fixed.
- AFL: when array was passed as "amount" argument to DateTimeAdd, the results could be incorrect. Fixed.
- AFL: SetChartOptions did not write chart flags in 5.5x. Fixed
- AFL: GetFnData() now supports "Country" field

CHANGES FOR VERSION 5.59.0 (as compared to 5.58.0)

- New Analysis: loading previously stored APX files into 5.58 resulted in ICB filter being set (instead of cleared). Fixed.
- New Analysis: 3D optimization chart can also be displayed from single-parameter optimization now, without need to add dummy Optimize()
- IB data plugin: CMDTY historical requests use MIDPRICE instead of TRADES
- IB data plugin: Max. number of symbols increased to 1000
- UI: Tools->Preferences/Charting: added setting to show (or hide) the bar number in the crosshair's X label, by default the bar number is NOT shown now (previously it was ON by default)
- UI: Tools->Preferences/Charting removed setting for "'New look' charts" - now 'New look' is used always
- UI: For PlotOHLC and Plot with styleCandle/styleBar tooltip and data window display OHLC data in this order (instead COHL in previous versions)
- UI: Data window now displays values for all panes at once (you can turn the display of single pane back using right click menu option)
- ASCII importer: added \$COUNTRY command and COUNTRY field to \$FORMAT command
- AFL: in ROC, RSI, RSIa, TRIX, CCI, MFI, MA, EMA, Hold, BBandBottom, BBandTop, PDI, MDI, ADX, ATR, Correlation, Wilders functions 'range' parameter is now checked for > 0 and error is displayed when it is negative
- Interval-locked layers did not work correctly for N-tick/volume/range intervals. Fixed.

CHANGES FOR VERSION 5.58.0 (as compared to 5.57.1)

- DB: Automatic setup and update of stock symbol listing, together with sectors, industries, markets and groups (Tools->Update US symbol list and categories). This is implemented using new #import command and new ASCII importer commands (see below for the details)
- UI: custom tools menu - added special internal command #import that allows to import ASCII files from local disk or even from remote (web) sources. In the Tools->Customize, "Tools" page, you can now define custom tool that uses new #import command
Command: #import
Arguments: URL to download data from
Initial dir: path to format definition file
- UI: custom tools menu - when an error occurs during launching of external command appropriate error message is displayed (instead of nothing like in old versions)
- DB: The support for Industry Classification Benchmark (ICB) category system added (See icb.txt file for definitions)
- OLE: Stock object has new property (string): ICB (read/write)
- ASCII importer: support for importing sector/industry scheme and assignments by name (new SECTORNAME and INDUSTRYNAME fields in \$FORMAT command)
- ASCII importer: new \$CLEARSECTORS 1 to wipe existing sector / industry structure.
- ASCII importer: new \$SORTSECTORS command to sort existing sector/industry structure.
\$SORTSECTORS 1 - sort case sensitive, without touching sector/industry == 0 (undefined sector/undefined industry)
\$SORTSECTORS 2 - sort case sensitive, all defined sectors/industries
\$SORTSECTORS 3 - sort case insensitive, without touching sector/industry == 0 (undefined sector/undefined industry)
\$SORTSECTORS 4 - sort case insensitive, all defined sectors/industries
- ASCII importer: crash could occur if required numeric arguments for some commands were missing. Fixed.
- ASCII importer: added support for ICB import: ICB field added to \$FORMAT command and added \$ICB command

For example ICB assignments for NYSE can be imported from this site:
<http://www.nyse.com/indexes/nyaindex.csv>

(to import use this format def)

```
$FORMAT FullName, Ticker, Skip, ICB, Skip, Skip, Skip, Skip  
$SKIPLINES 2  
$SEPARATOR ,  
$CONT 1  
$GROUP 255  
$AUTOADD 1  
$NOQUOTES 1
```

- ASCII importer: numeric field data may be enclosed in double quotation marks and still properly interpreted as numbers now.
- AFL: SetChartOptions did not allow to overwrite miny/maxy in 5.51-5.57. Fixed.
- AFL: CategoryGetSymbols, CategoryGetName, CategorySetName, CategoryAddSymbol, CategoryRemoveSymbol, CategoryFind updated to support categoryICB (new constant = 8)
- AFL: added InIcb() and IcbID() functions
- AFL: Added Status("lastbartimeleft") - it works like "lastbartimeleft" but uses the most recent RT stream update time instead of Now(). Also added Status("lastrtupdate") - time of last RT stream update
Depends on RT plugin to deliver correct DateUpdate / TimeUpdate data.
If plugin or date source sends incorrect datetimestamps or does not send DateUpdate/TimeUpdate correctly this function will not operate properly.
Note that most data sources send weird (not current) datetime stamps on weekends. Also IQFeed plugin sends DateUpdate/TimeUpdate only inside regular trading hours
- UI: Interval combo box was not updated after changing preferences / intraday / custom interval settings. Fixed.
- Analysis: when optimization is stopped, Optimize() returned NON-default value when Status("action")==actionPortfolio in subsequent backtest. Fixed

CHANGES FOR VERSION 5.57.1 (as compared to 5.57.0)

- When real-time quotes were streaming interval combo refreshed too often making it hard to enter new interval in 5.57.0. Fixed.
- Entering custom interval in the combo did not always work correctly for floating windows in 5.57.0. Fixed.

CHANGES FOR VERSION 5.57.0 (as compared to 5.56.0)

- Charts/UI: now there is a new chart interval combo box that allows to either select predefined interval OR simply type ANY interval you want without the need to define it in the preferences
Supported interval codes are:

Y - yearly, Q - quarterly, M - monthly, W - weekly, D - daily, N - day/night,
h - hourly, m - minute (note lowercase m), s - second, T - tick, R - range, V.

D, h, m, s, T, R, V intervals can be preceded by a number. So if you type 15m it means 15 minute chart, if you type 13T it means 13 tick chart, if you type 200R it means 200R (range) chart.
If you type just a number (x) without the following letter it will treat it as x-minute chart.

Note that while AmiBroker is trying to keep layout files backward compatible, attempt to load the layout that uses 'new' interval that is not present in defined set into *old* (pre-5.57) version will result in this extra interval being replaced by simply daily chart.

- Tools->Auto update quotes is now native command (not a 'custom tool' as it was)
This change was caused by the fact that custom tools menu is stored in HKEY_CURRENT_USER registry key that is shared between 32-bit and 64-bit version.
That caused that if both 32-bit and 64-bit versions were installed an unmatching bitness version of AmiQuote could be launched and that in turn caused problems because in Windows OS 64-bit automation first calls 64-bit server and only in absense of it tries 32-bit. So if both versions were installed only one was updated properly (the last one installed) using "Auto-update" command.

Having this command native ensures that proper bitness version is launched so 32-bit and 64-bit versions of AmiBroker can be updated with appropriate corresponding versions of AmiQuote.

- Default "X grid spacing" changed to 50 (from original 60) pixels
- 12 hour X grid spacing replaced by 6 hour

CHANGES FOR VERSION 5.56.0 (as compared to 5.55.1)

- **New Analysis:** A new walk-forward summary report that covers all out-of-sample steps
There were significant changes to walk forward testing made to allow summary out-of-sample report. The most important change is that each subsequent out-of-sample test uses initial equity equal to previous step ending equity.
(Previously it used constant initial equity).
This change is required for proper calculation of all statistics/metrics throughout all sections of out-of-sample test.

Summary report shows the note that built-in metrics correctly represent all out-of-sample steps but summary custom metrics are composed using user-definable method:
1 first step value, 2 last step value, 3 sum, 4 average, 5 minimum, 6 maximum.

By default summary report shows last step value of custom metrics UNLESS user specifies different combining method in
`bo.AddCustomMetrics()` call. `bo.AddCustomMetrics` has now new optional parameter - `CombineMethod`

`bool AddCustomMetric(string Title, variant Value, [optional] variant LongOnlyValue, [optional] variant ShortOnlyValue , [optional] variant DecPlaces = 2, [optional] variant CombineMethod = 2)`

This method adds custom metric to the backtest report, backtest "summary" and optimization result list. Title is a name of the metric to be displayed in the report, Value is the value of the metric, optional arguments LongOnlyValue, ShortOnlyValue allow to provide values for additional long/short-only columns in the backtest report. Last argument DecPlaces controls how many decimal places should be used to display the value.

Supported `CombineMethod` values are:

- 1 first step value, - summary report will show the value of custom metric from very first out-of-sample step
- 2 last step value (default), - summary report will show the value of custom metric from the last out-of-sample step
- 3 sum, - summary report will show the sum of the values of custom metric from all out of sample steps
- 4 average, - summary report will show the average of the values of custom metric from all out of sample steps
- 5 minimum, - summary report will show the smallest value of custom metric from all out of sample steps
- 6 maximum.- summary report will show the largest value of custom metric from all out of sample steps

Note that certain metrics calculation methods are complex and for example averaging them would not lead to mathematically correct representation of all out of sample test.

Summaries of all built-in metrics are mathematically correct out-of-the-box (i.e. they are **not** averages, but properly calculated metrics using method that is appropriate for given value). This contrasts with custom metrics, because they are user-definable and it is up to the user to select 'combining' method, and still it may happen that none of the available methods is appropriate. For that reason the report includes the note that explains what user-definable method was used to combine custom metrics.

- **New Analysis:** walk forward procedure now produces detailed reports for every out-of-sample step

- Enhanced backtest report: color-coding 'good' and 'bad' values in backtest report
Some of the metrics in the backtest report are color-coded.
Blue means "neutral", Green means "good", Red means "bad"
Metrics that are not colorized are always black
This color coding is of course arbitrary and should be used as guidance only.
Treat 'red' as a warning flag and advice to check the value in detail.

As of now the following metrics are colorized:

Net Profit, Net Profit % - bad < 0, good > 0

Annual Profit %, bad < 0, neutral between 0 and 10, good > 10

RAR % bad < 0, good > (10 / Exposure)

Avg. Profit/Loss all trades (Expectancy \$) - bad < 0, good > 0

Avg Profit/Loss % all trades (Expectancy %) - bad < 0, good > 0

Max. system % drawdown - bad: dd worse than -30%, neutral: dd between -30 and -10%, good - -10% to 0%

CAR/MaxDD, RAR/MaxDD - bad < 1, neutral between 1 and 2, good > 2

Recovery factor - bad < 1, neutral between 1 and 2, good > 2

Payoff ratio - bad < 1, neutral between 1 and 2, good > 2

- Report: a note added to tooltips for Sharpe ratio and UPI metrics telling where user can change risk-free rates for those metrics
- Report Explorer 1.0.2 - added alternate row background color
- Removed "00:00:00" time in the "date from" in the backtest report / settings page
- Param window: clicking on category that had exactly same name as parameter resulted in changing parameter value. Fixed.
- Analysis: all custom metrics were treated as numbers (for example got formatted with thousand separator). Now AmiBroker custom metrics of string type are treated as strings and do not get any extra formatting for the display.
- Added recommendation to activate multithreading to the performance warning tooltip when multithreading is currently turned OFF.

CHANGES FOR VERSION 5.55.1 (as compared to 5.54.0)

- Random characters could appear in list view clipboard copy in 5.55.0. Fixed (5.55.1).
- _SECTION_BEGIN/_SECTION_END/_PARAM_VALUES appeared twice in auto-complete listbox. Fixed.
- SetOption("PortfolioReportMode", x) changed exploration columns too. Fixed. (bmg#92)
- AFL: new function GetAsyncKeyState(vkey)
GetAsyncKeyState is 100% equivalent of Windows API function of the same name.
See: [http://msdn.microsoft.com/en-us/library/windows/desktop/ms646293\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/ms646293(v=vs.85).aspx)

The function queries current state of keyboard keys (at the time of the call).

vkey is virtual key code to query (see table below).

The function returns 0 if key is NOT pressed and value < 0 (less than zero) when key is currently pressed.

Example:

```
Plot( C, "Close", colorRed );

vk_Shift = 16;

if( GetAsyncKeyState( vk_Shift ) < 0 )
    Title = "Shift is pressed";
```

Virtual Key codes:

```
vk_BackSpace = 8;
vk_Tab = 9;
vk_Return = 13;
vk_Shift = 16;
vk_Control = 17;
vk_Alt = 18;
vk_Pause = 19;
vk_CapsLock = 20;
vk_Escape = 27;
vk_Space = 32;
vk_PageUp = 33;
vk_PageDown = 34;
vk_End = 35;
vk_Home = 36;
vk_Left = 37;
vk_Up = 38;
vk_Right = 39;
vk_Down = 40;
vk_PrintScreen = 44;
vk_Insert = 45;
vk_Delete = 46;
```

/* NOTE: vk_0..vk_9 vk_A.. vk_Z match regular ASCII codes for digits and A-Z letters */

```
vk_0 = 48;
vk_1 = 49;
vk_2 = 50;
vk_3 = 51;
vk_4 = 52;
vk_5 = 53;
vk_6 = 54;
vk_7 = 55;
vk_8 = 56;
vk_9 = 57;
vk_A = 65;
vk_B = 66;
vk_C = 67;
vk_D = 68;
vk_E = 69;
vk_F = 70;
vk_G = 71;
vk_H = 72;
vk_I = 73;
vk_J = 74;
vk_K = 75;
vk_L = 76;
vk_M = 77;
vk_N = 78;
vk_O = 79;
vk_P = 80;
vk_Q = 81;
vk_R = 82;
vk_S = 83;
vk_T = 84;
vk_U = 85;
vk_V = 86;
vk_W = 87;
vk_X = 88;
vk_Y = 89;
vk_Z = 90;
```



```

vk_LWin = 91;
vk_RWin = 92;
vk_Apps = 93;
/* numerical key pad */
vk_Numpad0 = 96;
vk_Numpad1 = 97;
vk_Numpad2 = 98;
vk_Numpad3 = 99;
vk_Numpad4 = 100;
vk_Numpad5 = 101;
vk_Numpad6 = 102;
vk_Numpad7 = 103;
vk_Numpad8 = 104;
vk_Numpad9 = 105;
vk_Multiply = 106;
vk_Add = 107;
vk_Subtract = 109;
vk_Decimal = 110;
vk_Divide = 111;
/* function keys */
vk_F1 = 112;
vk_F2 = 113;
vk_F3 = 114;
vk_F4 = 115;
vk_F5 = 116;
vk_F6 = 117;
vk_F7 = 118;
vk_F8 = 119;
vk_F9 = 120;
vk_F10 = 121;
vk_F11 = 122;
vk_F12 = 123;
vk_F13 = 124;
vk_F14 = 125;
vk_F15 = 126;
vk_F16 = 127;

vk_NumLock = 144;
vk_ScrollLock = 145;
vk_LShift = 160;
vk_RShift = 161;
vk_LControl = 162;
vk_RControl = 163;
vk_LAlt = 164;
vk_RAlt = 165;
vk_SemiColon = 186;
vk_Equals = 187;
vk_Comma = 188;
vk_UnderScore = 189;
vk_Period = 190;
vk_Slash = 191;
vk_BackSlash = 220;
vk_RightBrace = 221;
vk_LeftBrace = 219;
vk_Apostrophe = 222;

```

- AFL: Status() function supports new fields "lastbarend", "lastbartimeleft", "timeshift"
 Status("lastbarend") returns DateTime of the end of last bar. For example 5 -minute bar at 9:00 will have end time of 9:04:59 (works for time-based bars only)
 Status("timeshift") returns database timeshift expressed in seconds
 Status("lastbartimeleft") returns number of seconds to the completion of current last bar. Works for time-based bars only. Note that for proper operation this requires database timeshift to be set properly (so dates displayed on chart match your local computer time zone).

- List view clipboard copy now uses regional settings decimal separator.
You can turn it off and revert to "always dot" decimal separator by creating registry key
HKEY_CURRENT_USER\TJP\Broker\Settings
DWORD value "UseLocaleForClipboard" = 0
- Charting: added left- and right extend option to the rectagle drawing tool
- List view date column sort was incorrect when regional settings time format was set to: H:mm:ss.
Fixed.
- When multithreading in charts was turned OFF, drawing tools did not work properly in 5.53-5.54.
Fixed.
- XYChartAddPoint does not generate error anymore when Null values are passed as X, Y co-ords.
Instead it silently ignores such points (they are not plotted) and XYChartAddPoint returns FALSE (0)
- AFL: new function StaticVarInfo("varname", "field")
StaticVarInfo("varname", "field") - provides information about static variables
" varname" - is a variable name. It can be also a wildcard template such as "myvariable*" and then it means that AmiBroker will search for all variables beginning with
" myvariable". * character matches any string, ? matches any single character

Supported "field" values are:

" list" - returns the list of static variables

" memory" - returns memory usage in bytes (not including memory used for variable name itself)

" totalmemory" - returns memory usage in bytes (including memory used for variable name)

Example:

```
StaticVarSet("my_array1", Close );
StaticVarSet("my_array2", Close );
StaticVarSet("my_scalar", 12 );
StaticVarSetText("my_text", "Text123456" );

"All variables in memory: " + StaticVarInfo( "*", "list" );
" Total static var memory: " + StaticVarInfo( "*", "totalmemory" );
" Only my_ variables: " + StaticVarInfo( "my_*", "list" );
" Memory 2 arrays (bytes): " + StaticVarInfo( "my_array*", "memory" );
" Memory scalar (bytes): " + StaticVarInfo( "my_scalar", "memory" );
" Memory text (bytes): " + StaticVarInfo( "my_text", "memory" );
```

CHANGES FOR VERSION 5.54.0 (as compared to 5.53.1)

- New Analysis: "Sync chart on select" did not respect linked charts and symbol lock. Fixed.
- AFL: new function XYChartSetAxis("chartname", "x-axis name", "y-axis name")
- AFL: new function XYChartAddPoint("chartname", "text", x, y, color)
- New Analysis: Implemented XY (scatter) charts in Explorations

Example:

```
// XY chart coding example
// This formula generates 2 X-Y scatter charts that display
// relationship between
// final trade profit and MFE and MAE

Buy = Cross( MACD(), Signal() );
Sell = Cross( Signal(), MACD() );
Short = False;
Cover = False;

Eq = Equity( 1 ); // single-security equity this evaluates stops (if
you use them) and removes extra signals

Entry = Buy OR Short;
EqAtEntry = ValueWhen( Entry, Eq );
Profit = 100 * ( Eq - EqAtEntry ) / EqAtEntry; // percent profit
```

```

// MAE and MFE below use CLOSING equity, MAE and MFE in the report
use high/low price
MAE = 100 * ( LowestSince( Entry, Eq ) - EqAtEntry ) / EqAtEntry; //
percent MAE
MFE = 100 * ( HighestSince( Entry, Eq ) - EqAtEntry ) / EqAtEntry; //
percent MAE

bi = BarIndex();
Len = bi - ValueWhen( Entry, bi );
EntryPrice = ValueWhen( Entry, BuyPrice );

// if you prefer MAE/MFE using high/low price
// uncomment the lines below (long only Version)
MAE = 100 * ( LowestSince( Entry, Low ) - EntryPrice ) / EntryPrice ;
// percent MAE using low
MFE = 100 * ( HighestSince( Entry, High ) - EntryPrice ) / EntryPrice
; // percent MAE using high

Exit = Sell OR Cover;
dt = DateTime();
Clr = ColorHSB( Status("stocknum"), 255, 255 );

for( bar = 0; bar < BarCount; bar++ )
{
    if( Exit[ bar ] )
    {
        // item text consists of two parts
        // first part (before \t) is a item name displayed immediatelly
on XY chart
        // second part (after \t) is a tooltip hint text that is
displayed in the tooltip
        // when you hover on given item
        // here we will only use hint text
        HintText = "\t" + Name()+"@"+ DateTimeToStr( dt[ bar ] );

        XYChartAddPoint( "Profit vs MAE", HintText, MAE[ bar ],
Profit[ bar ],Clr );
        XYChartAddPoint( "Profit vs MFE", HintText, MFE[ bar ],
Profit[ bar ], Clr );
        XYChartAddPoint( "Profit vs trade length", HintText, Len[ bar
], Profit[ bar ], Clr );
    }
}

XYChartSetAxis( "Profit vs MAE", "[MAE]", "[Profit]" );
XYChartSetAxis( "Profit vs MFE", "[MFE]", "[Profit]" );
XYChartSetAxis( "Profit vs trade length", "[Length]", "[Profit]" );

Filter = Exit;
AddColumn( Eq, "Equity" );
AddColumn( Profit, "Profit" );
AddColumn( MAE, "MAE" );
AddColumn( MFE, "MFE" );
AddColumn( Len, "trade length" );

```

- {{INTERVAL}} gave incorrect (unstable) results in custom n-tick/n-range/n-volume charts when used with multithreading. Fixed.
- Interval(2) returned incorrect (unstable) results in custom n-tick/n-range/n-volume charts when used with multithreading. Fixed.
- Preferences: Currency page was not working properly. Fixed.
- Status bar look matches now appearance settings (esp. visible in VS2012 style)

- Parameter window now allows to select combined styles (like styleHidden) as well as their components styleNoRescale+styleNoDraw independently
- User setting for minimum pixel spacing in X grid (Tools->Preferences, "Axes / Grids") - it is recommended to keep it at default value (60 pixels), for denser grid use less spacing (minimum 30 pixels), for wider grid use more x spacing (maximum 120 pixels)
- Sometimes panes did not refresh to final size when chart sheets are switched (for example - one tab has only one pane second tab has two panes). Fixed.

CHANGES FOR VERSION 5.53.1 (as compared to 5.53.0)

- Trend lines and other drawing tools sometimes were blinking or disappeared in 5.53.0. Fixed
- Plots with styleDashed mixed with plots using other styles could cause continuous growth of rendering time in 5.52/5.53. Fixed.

CHANGES FOR VERSION 5.53.0 (as compared to 5.52.0)

- Triangle drawing tool now supports filled interiors
- Vertical selector line was flickerking with RT update when more than one chart window was open. Fixed
- SetChartGradientFill renamed to SetGradientFill
- SetGradientFill now has 2 more arguments: baseline and baselinecolor. Allows reverse gradient chart (such as underwater equity) and 3 color gradients top->baseline->bottom
- Added 2-year and 5-year x grid spacing
- Gradient chart sometimes disappeared when null values were in the data set and chart was zoomed out to the maximum. Fixed.
- GUI: Preferences dialog adjustments (moved "bold" checkbox in color page, removed obsolete "show vertical line" boxes in charting page, moved candlestick outline color settings from charting to color page)
- styleClipMinMax interfered with styleGradient in 5.52.0. Fixed (both styles can now be used independently as well as combined together)

CHANGES FOR VERSION 5.52.0 (as compared to 5.51.2)

- Chart themes implemented, featuring new look, new grid settings, new background gradient fills, predefined themes for more details see: http://www.amibroker.com/guide/h_themes.html
- Charts: X-axis algorithm rewritten (now it is clearer and prevents overcrowded/unreadable X labels)
- Charts: added native gradient area charts. Gradient chart is obtained using styleGradient. Upper gradient color is specified by color parameter in Plot() function, bottom gradient color is either background color or can be defined using SetChartGradientFill function. styleGradient can be combined with styleLine

Example

```
SetChartGradientFill( colorLightOrange, colorPaleGreen );
Plot( C, "Close", ColorBlend( colorPaleGreen, colorBlack ),
styleGradient | styleLine, Null, Null, 0, -1 );
```

- Charts: Plot/PlotForeign/PlotOHLC now adds extra parameter "width" that controls the width of the line. Positive values specify PIXEL width, negative values specify width in percent of current bar width. So for example -20 will give you dynamic width that is 20% of bar width. Example:

```
Plot( C, "Close", colorBlack, styleBar, Null, Null, 0, 1, -20 /* line width as percent of bar */ );
```
- Eliminated build-up of rendering times caused by growing of MFC temporary GDI object maps in non-UI threads. Now rendering engine uses direct WINAPI calls without MFC
- View->Filtering menu was disabled in 5.51.x. Fixed
- Data window was not working in 5.51.x. Fixed
- " Show middle lines" = "NO" causes date axis to be moved down outside visible area. Fixed.
- Selector line was not working correctly in 5.51. Fixed.
- Bold dotted trendline did not work in 5.51 BETA. Fixed
- AFL: LinearReg/LinRegSlope/LinRegIntercept/TSF/StdError display proper error message when user passes negative (wrong) parameter
- Study tooltip information now includes also number of bars between start and end of the trendline
- New Analysis: saving last column layout works better
- Account manager: Edit->Undo menu was missing. Fixed.

- GetFnData() now supports retrieving "Address" field too
- On Win98 and above drawing engine uses DC_PEN/DC_BRUSH for speed
- Optimize() reduced possibility of IEEE floating point accumulation errors with steps < 1 (such as 0.01)
- PlotShapes() does not plot multiple times in same x/y pos anymore - it results in faster rendering when shapes overlap (large zoom outs)

CHANGES FOR VERSION 5.51.2 (as compared to 5.51.1)

- PlotShapes() rendering was slower in 5.51 than in 5.50. Fixed.
- Interpretation was blank with new rendering engine. Fixed.
- Charts: Quick AFL was disabled in new rendering engine causing slowdowns with > 100K bars. Fixed

CHANGES FOR VERSION 5.51.1 (as compared to 5.51.0)

- fix for low-level Gfx* functions causing crash when multithreaded GDI was enabled

CHANGES FOR VERSION 5.51.0 (as compared to 5.50.5)

- Charts: Multithreaded GDI implemented for super-smooth UI response and preventing GDI-intensive charts from deteriorating entire UI responsiveness
- Maximum rendering time limit increased to 1000ms (1sec) when multithreaded charts + GDI are enabled (allowing 2 times more complex plots without Warning 901)
- 64-bit only: eSignal plugin - first BETA version of 64-bit eSignal plugin (3.0.0)