

# *R\*TIME Viewer 4.2 – What's Really In There?*

**Kevin Coble**  
**SCIENTECH, LLC**

**August 2004**



2004 Performance Software User's Group Meeting



# *Changes since Version 4.0*

## ❖ Three Categories of Changes

- Changes to displays
- Changes to the point selection dialogs
- Changes to configuration options

# *File Format Changes*

- ❖ New Display File Format
  - Version 4.2 displays not usable by 4.0 or earlier viewer apps
  - Still reads all display formats from version 3.5 forward
- ❖ New Local Group files
  - Not compatible with previous versions
  - Requires unicode compatible viewer for manual observing

# *Display Changes*

- ❖ Default Formats
  - Can be selected individually for numerical output fields (numeric value, archive value, database value, trend limits)
  - Provided by R\*TIME server as part of point database
    - Format type (Float, Scientific, etc.)
    - Length
    - Precision
    - Explicit Plus Sign
  - Display definition format still used if no default format provided by server

# *Display Changes (cont.)*

## ❖ Explicit Plus Sign

- Can be selected individually for numerical output fields (numeric value, archive value, database value, trend limits)
- Positive numbers get a '+' sign prepended to value
- Zero does not get any sign

## *Display Changes (cont.)*

- ❖ Security Level for Program Function Buttons
  - Current security level checked against level supplied when function button is created
    - Error message if security level insufficient
    - No function application code sent to external application
  - Defaults to 0 in display builder (no security needed)

## *Display Changes (cont.)*

- ❖ 32 X-Y Trend Limit Regions
- ❖ Unicode Text
  - All text, file names, and data files now support internationalization
- ❖ Alarm Color Index Usable in Trend Ranges
  - Similar to other entities (i.e. numeric value) in allowing the alarm color index value to be used in color range selection
  - Does not slow down drawing like normal trend regions

# *Display Changes (cont.)*

- ❖ Trend Event Markers
  - Puts a visual indication on a trend at a time provided by a database or local point
  - Indication can consist of a line, arbitrary text string, time stamp, symbol, or any combination thereof
  - Color, font, and symbol shape can be defined for each indication element
  - Up to 8 trend event markers per trend
  - Vertical position of indication set from selection list – top, bottom, middle, text line (first marker on top, second below, etc.), and near trended line at event time

## *Display Changes (cont.)*

- ❖ Drawing Area Entity as Trend Background
  - Allows an external application to draw an arbitrary background for either scrolling or X-Y trends
  - Usually must use an indirect \$LOCAL as a trended point, to be filled with an invalid point ID at display activation, then the real trended point VID when drawing area is filled
  - Drawing area image cached as shape background, not dynamically updated, but an external program can force a redraw

## *Display Changes (cont.)*

### ❖ Animation Bar Charts

- Third option for bar chart type – normal, shape, and animation.
- Bar chart scale and current value are used to determine percentage like any other bar chart, but percentage is applied to length of animation. Frame associated with the calculated time is drawn as a static image.
- Useful for creating dials, tachometers, sliders, and other non-linear motion display indicators.

# *Point Selection Changes*

## ❖ Extra Data Fields

- Adds a second description, point instrument tag, and/or the point category field to the point selection list
- Requires version 12.1 or better server to feed additional point cache file to client workstation
- Fields displayed may be selected by individual user – defaults to current description only state
- Fields can be added to the search criteria through a series of checkbox controls on the dialog window

# *Point Selection Changes (cont.)*

## ❖ Point Suppression

- Only displays points “authorized” for the current security login level – all others are suppressed from the selection list
- Requires version 12.1 or better server to feed new point cache file with suppression bits to client workstation
- Standard APAD, DPAD displays have been modified to allow the suppression bits to be modified

## *Point Selection Changes (cont.)*

- ❖ Combined Analog/Digital Point List
  - A combined “All Points” point type can be added to point selection dialogs that have both analog and digital types enabled
  - Option enabled with setting in MMI.INI configuration file
  - Combined list generated from point cache list for both analog and digital types, no additional data fetched from server
  - Point lists merged alphabetically

# *Point Selection Changes (cont.)*

## ❖ Preferred Point Type

- A “preferred” point type can be set through an option in the MMI.INI configuration file
- If the preferred point type is available for the point selection dialog, it will be activated as the default point type that the dialog starts with.

## ❖ Return Key Auto-Mapping

- Return and Enter keys now default to most likely operation to follow previous user activity

# *Configuration Changes*

## ❖ Menu Commands Security

- Each menu command can be assigned a minimum required security level in the MMI.INI configuration file
- Part of new “Security” section that encapsulates all the security options in the MMI.INI file
- Menu items that are disabled by security are shown “grayed-out”

## *Configuration Changes (cont.)*

### ❖ Auto-Logout to Initial Password

- Auto-logout returns workstation to level associated with initial password setting instead of reverting to level 0
- Set as option in “Security” section of the MMI.INI configuration file
- If option set but no initial password configured, auto-logouts will return workstation to level 0

## *Configuration Changes (cont.)*

- ❖ Server Name in Point Name Fields
  - Server name can be added to point names in point selection fields (“Input Controls”) and status bar on “mouse-over” events
  - Each location can be set as option in the MMI.INI configuration file
  - Server name pre-pended to name, separated by colon

# *Configuration Changes (cont.)*

## ❖ User Pop-Up Menu Additions

- Additional menu items can be appended to the “Right-Click” pop-up menus
- Currently limited to entity point pop-up menus, activating a special type of program called a “Point Program”
- Point service, type, name, along with current login information passed to the Point program
- Controlled by a new section in MMI.INI configuration file

## *Configuration Changes (cont.)*

### ❖ RTIMEWTEMP Clear Option

- New option in DataServ.INI configuration file enables the removal of all files in the RTIMEWTEMP directory when the client workstation (NetApp.exe) is first activated
- All files in RTIMEWTEMP, and first level of subdirectories (the 'A', 'B', 'C' subdirectories created for each connected server) are deleted.

## *Review of Version 4.0 Additions*

- ❖ For those not with us last time....
  - Version 4.0 was a major change to the R\*TIME Viewer
  - Number of new features prohibit demonstration today
  - Recap of last years presentation included in printed material for this presentation

## *Changes in Several Areas*

- ❖ Changes to how you set things up
- ❖ Changes to how you create displays
- ❖ Changes to existing entities
- ❖ New Entity - Drawing Area
- ❖ Changes to viewer operation

# *Changes to Client Setup*

- ❖ True Color
- ❖ Versioning File system
- ❖ \$Server
- ❖ Database Hiding
- ❖ Cursor Removal
- ❖ Master/Local INI files
- ❖ INI File batch read

# *True Color*

- ❖ 24 Bit Color now standard
- ❖ Blinking done by redrawing
- ❖ Colors.INI still used for blinking colors and for translation of 3.x displays
- ❖ Lower color settings will now get dithered

# *Versioning File System*

- ❖ Can read both 3.x and 4.x displays
- ❖ Always writes current version (4.0)
- ❖ Allows SCIEN<sup>T</sup>TECH to add features without requiring users to convert or recreate displays

# *\$Server*

- ❖ New special server name \$SERVER
- ❖ When used for point in display, is replaced at screen activation time with current default server
- ❖ Default server selectable by user or program
- ❖ Current setting shown in status bar

## *Database Hiding*

- ❖ Can specify databases to be hidden in DataServ.INI
- ❖ Hidden database is not shown in PickList
- ❖ Displays can still reference database

# *Cursor Removal*

- ❖ Cursor removal can be specified in INI file
- ❖ Useful for keyboardless displays

## *Master/Local INI files*

- ❖ New Environmental Variable  
RTIMEWMASTER
- ❖ Master Files can be Read-Only
- ❖ fCanOverride... flags for parameters or sections
- ❖ Priority - Local allowed by Master, Master,  
Local not in Master, Default

## *INI File Batch Read*

- ❖ MMI.INI is now read with each section as a single read, then parsed locally
- ❖ Greatly improves read time, especially on networked drives
- ❖ A must for Win2000 and XP, where the security additions slowed network file access

# *Changes to Display Creation*

- ❖ Default Font for Entities
- ❖ Position & Size of Selected Item
- ❖ Size of Window/Display in Status Bar
- ❖ Display Definition Size Settable
- ❖ Rotate & Flip of Shapes
- ❖ Display Calculations
- ❖ Compiler & Decompiler in Build

## *Default Font for Entities*

- ❖ Previously only for Background Text
- ❖ Now in all entities that are textual

## *Position and Size of Selection*

- ❖ Currently selected item has size and position in status bar
- ❖ Shows pixel coordinates for current window size and definition window size

## *Size of Window/Display in Status Bar*

- ❖ Current and definition size, in pixels

## *Display Definition Size Settable*

- ❖ Menu item to set definition size
- ❖ No longer need to decompile and compile
- ❖ Use to align items, set fonts, etc. at actual sizes of screens

## *Rotate & Flip for Shapes*

- ❖ Shapes can be rotated in 90 degree increments from base draw direction
- ❖ Shapes can be flipped about either or both the X and Y axis lines
- ❖ Only R\*TIME Shapes (for now!)
- ❖ Background shapes and graphical entities

# *Display Calculations*

- ❖ New set of special points
- ❖ Performs defined calculations before any data update
- ❖ Inputs - Values, VID, Qualities, constants, alarm index number
- ❖ Operators - Math, comparisons, boolean operations, trig functions, multiplexor
- ❖ Graphical representation of calculation
- ❖ 1000 available per display

# *Compile and Decompile*

- ❖ Now in the Display Builder
- ❖ Uses the versioning file system - reads 3.7 displays and converts automatically
- ❖ Options for compile now in dialog box
- ❖ Compile Last - knows last decompiled display
- ❖ Fixed multi-line text issue

## *Changes to Existing Entities*

- ❖ Multi-Shape Poke & Function Boxes
- ❖ Trend Symbol Size
- ❖ Output To String
- ❖ QuickTime Graphics
- ❖ Gradient Fills

## *Multi-Shape Poke & Function Boxes*

- ❖ Two shapes for these entities - up and down
- ❖ Dynamically shows button press for feedback
- ❖ \$DYNSTRING - Dynamic text from entity can be used in shape
- ❖ Can incorporate Shape, Text, and poke all in one now!

## *Trend Symbol Size*

- ❖ Now settable on a per-line bases
- ❖ Defaults to settings in the MMI.INI file
- ❖ Relative to width of active trend area

## *Output To String*

- ❖ Output of any textual entity can be stored into a string, rather than being displayed
- ❖ String can then be used in a Text-Tag entity
- ❖ Colors do not transfer
- ❖ Allows format changes, use of different points to apply status

## *QuickTime Graphics*

- ❖ Allows new shape types to be used
- ❖ 70+ different formats supported
- ❖ Graphics - jpeg, gif, tiff, tga, etc.
- ❖ Sounds - aif, wav, mp3, etc.
- ❖ Animations - mov, swf, mpeg, animated gif

## *Gradient Fills*

- ❖ Allows a continuously changing color across a graphic primitive
- ❖ Currently available for rectangles and circles

## *Drawing Area Entity*

- ❖ Allows external application program to draw onto display
- ❖ Lines, Rects, Ovals, Polygons, Arcs, Text, and Shape Files - Including QuickTime
- ❖ Acts as “Image Map”, passing the relative coordinates of a click back to the program

# *Changes to Viewer Use*

- ❖ User State & Local Groups File Changes
- ❖ Alarm Index in Trends
- ❖ Trend Data Dump
- ❖ Rate-Of-Change in Trend Info
- ❖ Replace Menu item
- ❖ Auto-Completion of Point Names
- ❖ Pick List Double-Click
- ❖ Trend Update on Half-Pixel Move

# *User File Changes*

- ❖ User State and Local Groups now have administration information attached
- ❖ User State Files now store points as server-type-name, rather than VID
  - Changes to Database does not affect file
  - Changes to DataServ.INI does not affect file
- ❖ Administrative programs currently in the works

## *Alarm Index on Trends*

- ❖ Alarm index number now stored with each data set
- ❖ Quality tag (if specified) now shown on trend info pop-ups
- ❖ Can be sent with exported data (see next item)

## *Trend Data Dump*

- ❖ Current data on trend can be dumped to a file
- ❖ CSV or Excel spreadsheet support
- ❖ Time stamp, values, alarm indexes

## *Rate of Change for Trend*

- ❖ Uses trend info pop-up window
- ❖ Select first point and press mark button
- ❖ Select second and press rate button
- ❖ Trend info is now rate of change, until next trend click

## *Replace Menu Item*

- ❖ Menu change to allow easy replacement of menu bar when hidden

## *Auto-Completion of Point Names*

- ❖ In point and archive point pick list dialogs
- ❖ When typing name into search box, partial-name search takes place in the pick list
- ❖ Search text box is now the default keyboard target

## *Pick List Double Click*

- ❖ External application pick-lists that have a single selection will complete when double-clicking on an item
- ❖ Same as single-click select, then OK button

## *Trend Update on Half-Pixel*

- ❖ Delays full trend redraws until a half-pixel movement has occurred
- ❖ Extra line segment added to current image if not a full redraw
- ❖ Lowers overall trend CPU usage significantly