

BAS Software Release Notes

3.9i - 49th Release 02/24/09

1. Changed time difference that will force an update of system timers from 3 seconds to 10 seconds. This was a attempt to resolve an issue with control functions and alarms not activating.
2. Added option for new section in System.ini that can be used to automatically reset Global Variables which have been configured as counters. To reset, make the following entries:

[GV Reset]

GV1=D Will reset GV1 each night at midnight
GV2=W Will reset GV2 each Sunday night at midnight
GV3=M Will reset GV3 the last day of the month at midnight
GV4=N Will never reset GV4

3.9i - 48th Release 02/23/09

1. Added actuator minimum, heating minimum, and maximum positions as test values in Alarm configuration.
2. Added Goto Heating Min Position as an Action Mode for actuators in the Specific Action output configuration of Alarms.
3. Modified logic for servers with 'Enforce OSA Cutoffs' enabled. System would previously zero out the client load if outside the configured OSA setpoints and the load was calling for the locked-out mode. Now the system will also force the stage of the server to AtSet if operating in the locked-out mode.
4. Changed initialization logic for actuators. If the actuator is being initialized after being reconfigured or as a routine initialization at midnight, it will return to its pre-initialization position when initialization is complete. There is no change to the way initialization is done on start-up - the actuator will go to its configured initialization position and begin normal control from there.
5. Made changes to point logs data format and ManGraf/AutoGraf.xls macros to be compatible with new time stamp format.
6. Moved EmailSvr.ini file from C:\BAS to C:\BAS\Data\Settings.
7. Added option to format of alarm messages sent to Email. Alarms can be either formatted in 2 line format as before or in 5 line format.

2 line format:

-Zone Alarm

Sun 02/15/09 @ 21:09:43 RSC 1-1 HP-1 - Heat Pump, 1 Cmp, RV Cl, B/U Ht
Fan=Off Fan Failure

-Master Alarm

Sun 02/15/09 @ 21:10:21 Master Alarm 1
Fire Alarm=1 Fire Alarm Shutdown

5 line format:

-Zone Alarm

Sun 02/15/09 @ 21:11:15
RSC 1-1

HP-1 - Heat Pump, 1 Cmp, RV Cl, B/U Ht
Fan=Off
Fan Failure
-Master Alarm
Sun 02/15/09 @ 21:11:23
Master Alarm 1

Fire Alarm=1
Fire Alarm Shutdown

8. Moved email server configuration to the BAS alarms menu.
9. Added option for up to 10 groups of email alarm distribution lists.
Each system alarm can be configured for which group to use.

3.9i - 47th Release 12/11/08

1. Added new options to the Custom Sensor configuration. These new options are fully compatible with existing configurations. The options are:

Offset = A fixed offset value to be applied to the sensor minimum
and maximum values

AutoCalc C = The system will take the configuration for English units (F)
and use those values to calculate the the corresponding Metric (C)
configuration. Enter '0' to not auto-calc and '1' to auto-calc.

AutoCalc F = The system will take the configuration for Metric units (C)
and use those values to calculate the the corresponding English
(F) configuration. Enter '0' to not auto-calc and '1' to auto-calc.

See the User.ini file installed in the C:\BAS\Data\Backup folder for details.

3.9i - 46th Release 12/09/08

1. Fixed mixup in display of column headers in Trend Log Viewer
for Load and CP.

3.9i - 45th Release 12/08/08

1. Changed display of PID load from +/-255 value to +/-100% value.
2. Changed display of items in main list box to better align values
within each column.
3. Fixed bug introduced in 3.9i.42 that prevented proper scaling
of sensors configured as 'amps'.
4. Added PID load to zone data in the Trend Log. The load will only
be recorded in the Trend Log after updating the site software
to version 3.9i.45 or later. Entries written to the Trend Log
using previous versions will display random values for the load.
5. Added capability to configure up to 10 custom sensor definitions.
The sensors are defined in the User.ini file found in the
C:\BAS\Data\Settings folder. Once defined, the custom scaling
is selected from the Zone Sensors dialog. Sensor can be defined
for English (F) units, Metric (C) units, or both.

Custom Sensor Definitions

```
[Custom Sensor 1]
Pri Description=Custom Sensor
Alt Description=Custom Sensor
Minimum Value English=40
Maximum Value English=90
Symbol English=1
User Symbol English=""
Units English=F
Minimum Value Metric=-4.44
Maximum Value Metric=32.22
Symbol Metric=1
User Symbol Metric=""
Units Metric=C
```

- Description - Sensor type descriptions in Primary and Alternate Language
- Minimum Value = Bottom end of sensor scale
- Maximum Value = Top end of sensor scale
- Symbol= Symbol to be attached to scaled value (Ex: 20% or 1.250")
 - Symbol options are:
 - 0 - none
 - 1 - degree symbol
 - 2 - %
 - 3 - "
 - 4 - '
 - 5 - #
 - 6 - k
 - 20 - user defined
- User Symbol= User defined symbol if symbol option set to 20
- Units= Units to be attached to scaled value (Ex: 30.2 gpm or 1.250" wc)

3.9i - 44th Release 09/02/08

1. Made changes to Min/Max CFM calcs for pressure independent VAV/VariZone damper control. Previously, if the zone was trying to achieve either min or max CFM it would be locked into that mode until min/max was achieved. The load was ignored in this mode. With the change:
 - For min CFM:
 - If the zone load is cooling and the server is cooling
 - Or the zone load is heating and the server is heating
 - Then the actuator will be allowed to open, even if the zone was previously trying to achieve minimum CFM.
 - For max CFM:
 - If the zone load is cooling and the server is heating
 - Or the zone load is heating and the server is cooling
 - Then the actuator will be allowed to close, even if the zone was previously trying to achieve maximum CFM.
2. Made change to actuator code that allows a heating actuator to open even though the VAV actuator has not achieved min

CFM on a pressure independent system when:

- The VAV zone actuator is 100% open and
- The CFM has not been able to reach minimum CFM.

3. Removed SP Offset and DAT sensors from the default definition of most equipment schedules without economizers.
 4. Removed SP Offset and CFM sensors from the default configuration of VAV/VariZone damper schedules.
 5. Removed MAT sensors from the default definition of equipment schedules with economizers (DAT will be used unless a MAT is field configured).
 6. Added 2nd stage of cooling to ES-9 and ES-10.
 7. Changed economizer definition of ES-5/6/7/8/11/12/23 from staged to 3-point floating/analog.
 8. Changed default economizer control to single point dry bulb OSA.
 9. ES-27 was removed (it was a duplicate of ES-28).
 10. Created new ES-43/44 for Bypass Damper control.
 11. Created new ES-34 - Chiller Enable, 2 Loop Pumps
 12. Created new ES-37 - Boiler Enable, 2 Loop Pumps
 13. Created new ES-39 - A/C Unit Enable
- 3.9i - 43rd Release 08/28/08
1. Added several new items to default point label list.
 2. Added new ES47 - Parking Garage CO Control.
 3. Modified scaling and display of KW meters for better support in alarms, trend logs, and point logs.
- 3.9i - 42nd Release 07/31/08
1. Added scaling for light level sensors - 0-1,000, 0-5,000, 0-50.0k, and 0-100.0k lux.
- 3.9i - 41st Release 07/07/08
1. Changed Graphics Viewer so that Mode will display 'Shutdown' when zone is in Shutdown, rather than Occ or Unocc.
 2. Modified zone history so that samples continue to record when zone is in Shutdown.
 3. Made change to positioning of pressure independent actuators when at or near max CFM with a large PID load.
- 3.9i - 40th Release 06/19/08
1. Made change to timer update code. The previous code could force all zones to enter Alarm Disable mode indefinitely any time that all there was a negative time-of-day change of 3 seconds or more.
- 3.9i - 39th Release 06/16/08
1. Corrected bug introduced in 3.9i.38 that determined an incorrect day-of-week for weekly time scheduling.
- 3.9i - 38th Release 06/04/08
1. Created new function in Graphics Builder which can change

the configured RSC address for multiple graphics controls at one time. To use this function, select more than one control (at least 1 of which must use an RSC address in its configuration), and then select 'Set Multiple Addresses' from the menu. If the last selected control is configured to a valid address, that address will be highlighted in the selection box. If not, zone 1-1a is highlighted. Once a new address is selected and OK is clicked, all selected controls will be reconfigured with the new address. If a Sensor Link or Override Link is included in the group of controls and 'Override Link' is the selected item, zone 1-1a will be configured for these items since 'Override Link' is not a valid selection. Any controls in the selected group that do not use an address, such as Static Text, will be ignored.

2. Made changes to the UpdateTime routine. On XP and later systems, it was possible to issue timer update commands more often than necessary. This could result in updating alarm countdown timers too often, causing alarm activation times to be incorrect. Generally, this would cause alarm/control functions to never activate.
3. Added IsWindow function to every place that a DestroyWindow command was issued. This was added to resolve a GP fault that occurred sometimes in the zip utility on shutdown.
4. Made a few changes in the way that the special Daily/Weekly/Monthly RunTime logs were handled. The Last Zeroed value was often wrong.
5. Made change to Specific Action X-Ref and VAV/VariZone X-Ref dialogs. When initially opened, they will look for a valid selection in the Main List Box and if found this selection will be used as the initial zone selection in the X-Ref dialog.

3.9i - 37th Release 04/17/08

1. Fixed bug that mistakenly stamped a "BAS System WatchDog shutdown" message in the Security Log on initial system startup if System Watchdog was not enabled in "Application Options".
2. Fixed bug in Specific Action X-Ref that displayed incorrect source point when connected remotely.
3. Added Global Variables to Trend Log data. The log will only begin recording Global Variables after updating the system to 3.9i.37 or later.

3.9i - 36th Release 01/15/08

1. Changed initialization of alarm and trend log selection dialog to initially select the 1st log name in the list.
2. Added PID Load as a selectable data item to Graphics Builder/Viewer analog readings.
3. Added new graphics control - Icon Link. This control will

display the same icon for a zone as found in the Main Listbox. Clicking the control in Viewer will do nothing at this time, but an action may be added later.

4. Changed default max server DAT for non-heat pump to 138 to be consistent with Type 4 DAT sensor range of 40-140.
5. Added default holiday configuration through 2025 (previous was 2010).

3.9i - 35th Release 11/27/07

1. Made change to routine that locates DAT/RAT/MAT sensor. Routine would not work correctly when custom labels were used and the DAT was located at any location other than AI4.
2. Fixed bug in actuator code. If actuator was configured as VAV and to "Use heating min pos", anytime the server DAT was > than the zone SAT, the actuator would go to min pos rather than max pos.

3.9i - 34th Release 10/02/07

1. Eliminated auto-set of MaxTrunks to 0 when comm port initialization fails on startup. The previous MaxTrunks setting is retained.
2. Changed the way that BAS launches other applications in Vista and XP. A new application, BAS_Exec.exe is launched to handle the process.

3.9i - 33rd Release 07/24/07

1. Corrected bug in WatchDog that prevented proper display of date/time when making entries in Security Log.
2. Fixed bug that prevented Troubleshooting override of AI or DI if they were being overridden with a "Set to" specific action from an Alarm or Control Function.
3. Fixed bug in Status screen that prevented proper update of stage value if the window was open while transitioning from Forced AtSet to AtSet. The Status screen would continue to display Forced AtSet, even though the zone was AtSet, until the zone entered either heating or cooling.
4. Eliminated stamps in Security Log from startup/shutdown of Text Editor (view Alarm Log/Comm Error Log/Security Log/etc).
5. Changed format of Login message in Security Log to match format of all other messages as modified in 3.9i.32.
6. Added another Windows version, Windows 98 Compat. This is for systems running XP or Vista that have the properties for BAS.exe set to Windows 98 compatibility mode. The possible values for WinVer are now:
Windows 3.10/3.11 - 1
Windows 95 - 2

Windows 98	- 3
Windows 98SE	- 4
Windows 98 Compat	- 5
Windows ME	- 6
Windows NT 3.51	- 7
Windows NT 4.0	- 8
Windows 2000	- 9
Windows XP	- 10
Windows XP x64	- 11
Windows 2003 Svr	- 12
Windows Vista	- 13

7. Fixed bug in alarm edit screen. When the edit screen is opened, any alarm configured with a specific action for an analog input to "= Source Zone's" would be changed to "Set to". If the alarm is saved, the action is changed to "Set to". It can be changed back to "= Source Zone's" and it will save correctly.

3.9i - 32nd Release 07/13/07

1. Modified IsValidFileName to only validate file names with EXE and FLR extensions. This was done primarily to allow hit links to URLs (URLs could not be validated as a file name) in Graphics Viewer.
2. Changed the alarm test point code to test the 'Actual' position for 3 point floating actuators rather than the 'Desired' position.
3. Modified Trend Log Viewer to display as much data as possible for zones which had recorded data but are now deleted. Deleted zones had previously displayed a blank line in the trend log.
4. Modified initial install/default options for: 1) Zone List Options; 2) Status Bar display.
5. Dropped the ViewYears option for the Trend Log from the User.ini settings file.
6. The system would always list the 19 oldest Trend Log files and the 20 oldest Alarm Log files in the Log Selection dialog box. The files were listed in order from oldest to newest. The system will now list all files (up to a maximum of 95 years of Alarm or Trend Logs) in both local and remote and will list the files in reverse order, with the newest at the top of the list.
7. Changed display format of messages in Alarm Log, Alarm screen messages, and Security Log.
8. Changed the display format for Day/Date/Time in most logs from "Thu Jul 12 19:35:19" and "Thu Jul 12 19:35:19 2007" to "Thu 06/07/07 @ 11:35:19".
9. Added "Set to" as an option for an Alarm/Control Function Specific Action on Analog Inputs. The only action that was previously implemented was "= Source Zones".
10. Made improvements to code which selected appropriate scaling and point labels for both Alarm test points and Alarm

specific action target points.

11. Added utility that determines version of Windows being used and stores a value in the System.ini file that indicates the version. The value is in the [Energy Zone] section and is called WinVer.

The possible values and their meanings are:

Windows 3.10/3.11	- 1
Windows 95	- 2
Windows 98	- 3
Windows 98SE	- 4
Windows ME	- 5
Windows NT 3.51	- 6
Windows NT 4.0	- 7
Windows 2000	- 8
Windows XP	- 9
Windows XP x64	- 10
Windows 2003 Svr	- 11
Windows Vista	- 12

3.9i - 31st Release 05/29/07 - Release

1. Created a new function GetOnlineZonep, which checks for a valid zone pointer and verifies that the zone is online.
2. Changed the CFM calibrate code to verify that a zone is online before the CFM zero is checked and saved as a new value. Previously, if the zone was offline, the CFM offset would be zero and would get saved as a new offset value.
3. Added check on System Shutdown to verify that Remote Server was running before trying to hangup the modem on shutdown. If the shutdown was initiated locally and Remote Server was not configured for a modem, WM_ENDSESSION would try to hangup the modem and generate a "Modem 0 Error: Comm Port 0, WriteComm failed" message.
4. Made change when launching User Manual that caused problem in initial launch when using Win 98 or Vista.
5. Added error reporting for failures when ShellExecute is used to open a file with an association - such as the User Manual.
6. Modified Graphics HitLink to support document files that have a program associated with them. For example if the file configured for the hitlink is a PDF file, clicking on the HitLink in Viewer will launch Adobe and open the PDF file. This action is the same as double-clicking the file within Windows Explorer.
7. Added Menu Link in Graphics for User Manual.
8. Changed 'Screen Update' time to allow settings between 1 and 60 seconds. Previous minimum limit when in Remote was 10 seconds.
9. Fixed bug that caused control placement problems when moving controls in Graphics Builder if the screen was reduced to less than maximum and the screen was scrolled either right of down.

3.9i - 30th Release 05/03/07 - Release #2

1. Changed the installation procedure to use a separately installed icon for BAS.exe in the program group, rather than the icon within the exe file. There were problems in Vista with displaying the program icon. This was done as a new upload of the program without changing the release version from 3.9i.30. This was only done for the system site software, not remote.

3.9i - 30th Release 04/27/07 - Release

1. Remove 'filetest' utility that was added in 3.9i.28. This function created a file in the c:\BAS\Data directory named filetest.txt that recorded any change in the number of file handles in use by BAS. It was updated once a second.
2. Added sensor scale of 0-200 PPM CO.
3. Added the label 'ppm' after the value when displaying CO and CO2 readings in Troubleshooting and Graphics Viewer.
4. Added menu selection under Help named "User Manual" that opens the BAS User Manual in Adobe Acrobat PDF viewer. Requires that Adobe Acrobat be installed on the computer.

3.9i - 29th Release 03/18/07 - Release

1. Fixed memory allocation bug introduced in RunTime changes added in version 3.9i.28. This bug allocates memory but does not release it and will eventually use all system memory. Memory can be exhausted in as little as 1 week.
2. Modified the way that global pointers are freed when exiting a Modal Dialog box. This was previously done when the IDCLOSE command was processed. This could cause problems if a list box was open at the time that required access to the global memory. Pointers are now freed when processing the WM_DESTROY message.

3.9i - 28th Release 03/05/07 - Release

1. Modified multiple select function to consider Type 3 and Type 4 sensors to be the same as far as change setpoints is concerned.
2. Added protection to prevent GP fault when connected remote and requesting setpoints before the previous setpoints request was displayed. This allowed 2 setpoints dialogs to be displayed, causing the 2nd dialog to free the memory from the first.
3. Fixed bug that prevented proper operation of 'Inc Rate' and 'Dec Rate' specific actions on actuators and analog outputs on systems configured for more than 1 trunk.
4. Changed order that items are displayed in Main List Box to better group similar items together.
5. Added protection to prevent file access and time clock problems when the system runs out of file handles. If out of file handles, BAS will reboot the PC.
6. Fixed bug that allows a 2nd change setpoints dialog to

be displayed remotely if the used requests setpoints while waiting for a previous request to be transmitted.

7. Changes DST to match new requirements of 2nd Sun in March and 1st Sun in Nov.
8. Added additional runtime logging capability. New logs will be created and saved in the C:\BAS\DATA\RTlogs directory. A new log will be created at the end of each day, week (Sunday night at midnight), and month. The log will be named RDmmdyy.log (daily log), RWmmdyy.log (weekly log), and RMmmdyy.log (monthly log) where mm is the month, dd is the day, and yy is the year. These logs will be created automatically. At this time, the only way to view the log is to copy it to the C:\BAS\DATA directory and rename it to runtime.log. To prevent overwriting the standard runtime log, it should be first temporarily copied to an alternate directory.

3.9i - 27th Release 09/06/06 - Release

1. Changed file open mode for point log, site database, and warmup log from OF_SHARE_DENY_EXCLUSIVE to OF_SHARE_DENY_NONE.
2. Added Configure menu option to system menu for Email Server.

3.9i - 26th Release 08/28/06 - Release

1. Added Digital Inputs and Digital Outputs as valid selections for Point Logs.

3.9i - 25th Release 08/11/06 - Release

1. Created new application - SysBoot.exe - to ReBoot PC. Previously used ExitWindows command was not fully supported in XP. System would log out but not reboot.

3.9i - 24th Release 08/10/06 - Release

1. Modified actuator operation when configured to use heating minimum position. Previously made decision based on PID load at zone, now activates at any heating stage.
2. Added USB-RS485 device drivers to EMCS-1 installation. The drivers are included in a self extracting zip file named USOTL4.EXE installed in the C:\BAS\DATA\DEALERS\DRIVERS directory. When USOTL4.EXE is run, the drivers will be expanded into the C:\BAS\DATA\DEALERS\DRIVERS\USOTL4 directory.
3. Changed RemoteTimeDiff value to a long from an int. This will allow proper display of time from remote sites that are more than +/- 32767 seconds different than local time.
4. Added WinVersion to SysInfo (replaced RemoteTimeDiff). This will allow checking of Windows version on remote sites.
5. Fixed bug that would cause GP fault if the user was using the ES editor and pressed the Enter key while the focus was in the ES description edit box.
6. Corrected error in graphics menu link for Connect to Host.

The link was disabled unless connected when in remote.

7. Made changes to the default troubleshooting label colors that are used if no ini settings exist.
8. Modified the timer update routine. Changed from min time change of 1 sec to min time change of 2 sec.
9. Changed code to correctly update the 'NumSlots' value after allocating additional timers.
10. Modified Graphics help screens and added to standard installation.

3.9i - 23rd Release 04/25/06 - Release

1. Fixed problem with remote Phonebook editing. A GP fault would occur if attempting to edit a remote site running version 3.91.18 or later with remote software version 3.9i.18 or later. This was a result of the increase in Phonebook size from 128 to 256 entries. The problem was in the Remote software and does not require an update of the site software to fix.

3.9i - 22nd Release 04/03/06 - Release

1. Fixed problem with ES Editor that would cause a GP fault if the windows 'X' box was used to close the edit dialog while the focus was on the name edit field.
2. Modified time-change checking routine to run differently on Windows XP and later vs Windows ME and earlier machines. This should minimize/correct system time clock errors on machines not running Windows XP.
3. Added "Backup site data to A&C" menu item to level 2 access, both local and remote.
4. Made some slight modifications to main menu configuration.

3.9i - 21st Release 03/17/06 - Beta

1. Graphics Viewer would cause a GP fault if the cursor was moved over a Graphics Alarm link that was configured as an Override Link but was on a FloorView that was not opened using an Override Link. The system will now verify that a valid Override Link exists before trying to display an Alarm message.
2. Fixed bug in ES Editor that would not save the location of the Lag DO on newly created Leag/Lag equipment schedules unless the list box was clicked.
3. Fixed problem with Access dialog. Appears to be only on XP systems with debug tools installed. Problem caused fault when std IDOK def was used for OK button and edit control was configured with ES_PASSWORD option.
4. VVT servers display standard PID load and stage while in Warmup mode, but control based on Warmup mode. Now displays correct load.
6. Fixed problem that prevented proper operation of setback override on zones with 3 point floating actuators. This problem would occur when the time passed midnight with the zone in override. The zone

would init to reset the actuator and clear the override.

7. Added ranges of -100 to 0 C Ultra Lo temp sensor and 0-60 Hz.
8. Modified standard graphics background frame bitmaps slightly to better match actual screen sizes. Sizes are:

	Screen Size	Bitmap Size
Lo Res	800 x 600	800 x 528
Med Re	1024 x 768	1024 x 696
Hi Res	1152 x 864	1152 x 792

9. Added Trend Log Viewer 3 and Email Alarm Server to standard software install. Must have special code to enable.

3.9i - 20th Release 11/07/05 - Beta

1. Fixed bug that prevented troubleshooting override of an AO or actuator if it was the target of an alarm or control function specific action.
2. Fixed bug introduced in 3.9i.18 that prevented the 2nd alarm condition from working correctly.
3. Added routine that provides proper time of day on Windows 2000/XP/NT systems. Any changes to the Window system clock were not seen by BAS.
4. Fixed bug that caused OSA air temps to display in increments of .05 F rather than 0.5 F.

3.9i - 19th Release 10/11/05 - Beta

1. Improved support and operation of Email Server.
2. Fixed bug introduced in 3.9i.18 that prevented proper operation of alarms under some conditions (incorrect setpoint).

3.9i - 18th Release 10/09/05 - Beta

1. Made several small changes and added validation of 'wanker' pointers to prevent GP fault when viewing Trend Log in Remote.
2. Modified Zone Config/Misc dialog box to disable 'Zone priority' checkboxes for VariZone clients.
3. Changed display of Global Variables to support a maximum of 65535 versus previous of 32767.
4. Changed phone book to support 256 sites vs previous max of 128.
5. Fixed bug in Trend Log viewer that would cause fault if attempting to view a Trend Log that contained data from zones from a trunk number higher than the highest trunk number configured for that site.
6. Modified code for alarm configuration when using HSP and CSP relative. When selecting > or >=, the alarm point is found by adding the test val to the HSP or CSP. When selecting < or <=, the alarm point is found by subtracting the test val from the HSP or CSP. When = is selected, the alarm point is found by adding to the CSP for CSP relative and subtracting from the HSP

for HSP relative.

7. Included first pre-release version of Email Server and first beta release of Trend Log Viewer 3.

Major Changes since Version 3.9h.30

Alarms

1. Added support for Email Server alarm message application.

Graphics

1. Added Graphics Viewer and Builder to most popup menus.
2. Added Graphics Builder Options dialog. User can now select a background bitmap image to be added to all floor views without an existing background.
3. Hitlinks can be configured to an exe file.
4. Modified Graphics Viewer link-file history so that return link will always return to the original linking file, not the most recently opened file.
5. Added a reverse acting option to display logic for the following graphics controls - Alarms, Boolean Bitmaps, and Animated Bitmaps. If the control is configured for R/A, then the bitmap will display On when the point is Off. This does not affect the 'Default Display' option when in Builder.
6. Changed color of graphics buttons and frames from dark gray to light gray.
7. Added new graphic control - switch - used to indicate generic on/off status.
8. Added new animated graphic control - sprinkler - for display of lawn sprinkler/irrigation control.

Analog Inputs/Sensors

1. Added function that tries to automatically determine the correct sensor input locations for DAT, MAT, RAT, RAE, and CFM. This is intended to avoid the requirement that input locations for sensors be fixed (such as DAT at AI4). The system searches for sensors beginning at the default locations shown below:

	Single	Dual	Quad
CFM Sensors	AI2	AI2	AI2
Discharge Air Temp Sensor	AI4	AI4	AI2

Economizer Sensors

Dual Enthalpy			
Return Air Enthalpy	AI2	AI2	AI2
Mixed Air Temp Sensor	AI6	AI4	AI1

Dual Dry Bulb

Return Air Temp Sensor	AI5	AI3	AI2
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Mixed Air Temp Sensor	AI6	AI4	AI1
Single Enthalpy or Dry Bulb			
Mixed Air Temp Sensor	AI6	AI4	AI2

2. Added support for new temp sensors. The new sensors (4-20 mA input) are designated as Type 4 (or T4) and the previous sensors (0-5 vdc) are designated as Type 3 (or T3). Any sensor at any zone can be configured as either T3 or T4.
3. All default configurations for zone and equipment schedule sensors has been modified from T3 to T4 sensors.
4. The sensor edit and I/O point label edit screens have been modified. The dialog will now only display the number of points valid for the zone.
5. Added new setpoint offset configuration option for direct user setpoint control from wall sensor, range is 55-80 F.
6. Added scales for 0-30/60/120 amps.

Troubleshooting

1. The Troubleshooting screen will now dynamically update the values in the 'Override' field to the actual value, unless the 'O/R' check box is selected.
2. The Troubleshooting screen will no longer allow DOs to be selected for override if the outputs are configured for 3-point floating actuators.
3. The Troubleshooting screen will now display the state of digital outputs which are configured for 3-point floating actuators.
4. The Troubleshooting screen will now highlight the labels (color normal) for additional analog inputs - all sensors selected as an input to the control point (average, highest, etc.), discharge air temp sensor on servers, CFM sensors for pressure independent VAV, setpoint offset sensor if used, and sensors used for economizer control (mixed air temp, return air temp, and return air enthalpy as appropriate).

EnerNet/Comm Port

1. Made changes to SetupComm that prevented BAS from communicating on the trunk line on some XP machines. EnerNet should now work on all XP PCs.
2. Removed EscapeCommFunction in SetupComm that tried to Set DTR after opening the Comm Port. DTR was already set by OpenComm and attempting to set it again returned an error with some Comm drivers.
3. Moved "EnerNet Device not connected" error message from dialog box to Comm Error log. This message would pop up sometimes when using a USB comm port device even though the device was connected. It appears that the driver sometimes has problems with the CTS line.
4. Added support for use of Comm Ports 1-9 for both modems and trunk lines (previous limit was 1-4). Modified EnerNet settings dialog to support additional Com Ports.
5. Removed MakePacket error message from release version. Only displays on Debug/Dev system.

Display/User Interface

1. Added popup (mouse right click) menu to Trend Log Viewer.

2. Added Zone ID to description on several dialog titles and list boxes (TS, history, status, GV, GB, etc.)
3. Modified display of digital inputs and outputs for both the Main List box and the Trend Log so that only the valid points are displayed (2 for Quad, 4 for Dual, 8 for Single).
4. Added specific action information to the active alarms/control functions, specific action xref, and global variable xref screens.
5. Changed order items are displayed in Main List Box. Similar items are now grouped together.
6. Changed display of DOs assigned to 3 point floating actuators in the Main List Box, on the Graphics Viewer screen, and in the Trend Log. Previously, the outputs always indicated off. Now the outputs will indicate their true state, the same as is done in the Troubleshooting screen.

Logs

1. Added option to Trend Log configuration to select the number of months the logs will be kept before deletion, from 1 month to 10 years. 'Never' is also a valid option.
2. If the user terminates a setback override (by pressing the button) it is now logged as "User terminated setback override" rather than "Setback override timeout".
3. Modified RunTime Log. Zones in Shutdown are now longer logged as Occupied.
4. Created new Excel macro that allows creation of a chart from a Point Log file without requiring BAS to be running. The file is named Man_Graf.xls and is stored in the C:\BAS\Data\Dealer folder.
5. Made changes to CFM storage in Trend Log to properly store CFM totals for VAV servers.
6. Added support for new Trend Log Viewer III application.

PID/Zone Control

1. Made changes to calcs for stage time. Biggest change was to allow stage times to be calculated for other than even minute values.
2. Added options to Zone/Misc dialog. The Zone Warmup Factor can now be displayed and adjusted. The configurable value is a multiplier in the range of 0.00 to 10.20 (256 steps). A multiplier of 1.00 is default and cause the system to calculate a factory standard recovery time. Lower multipliers reduce the recovery time, higher multipliers increase the recovery time. This feature is supported remotely on all existing sites. A second option, 'Disable Auto-adjust of Warmup Factor', will only work at sites running version 3.9h.40 or later. For sites running versions prior to 3.9h32, the base WUF will initially be 4.00. For sites using 3.9h32 and later, the initial base factor has been reduced to 1.00.

Miscellaneous

1. Added Release Notes. This is a text file that can be opened by selecting Tools/Release Notes... This file will contain the latest changes to the currently installed version of BAS. It is available at Access Level 5. The file can also be found and viewed using any text editor such as

Notepad at C:\BAS\Data\Dealer\RelNotes.txt.

2. Created Debug Options dialog box.

Actuators

1. Added new actuator type, GBAS. Intended to be used for interface to Trane GBAS for remote adjustment of setpoints. BAS will always send a known analog output signal for any given configured setpoint. If the actuators are configured as GBAS, Actuator 1 will use the Occ Heating setpoint and Actuator 2 will use the Occ Cooling setpoint. On the zone actuators config screen, the Min SP value corresponds to the Occ setpoint that will yield the configured Actuator minimum. The Max SP value corresponds to the Occ setpoint that will yield the configured Actuator maximum. If the Occ setpoint is between the configured Min and Max SP values, the Actuator will be set proportionally.

Example: Occ HSP = 70 F
Min Pos = 20%
Max Pos = 100%
Min SP = 40 F
Max SP = 90 F

Actuator 1 position will be:

$$\text{Act1} = 20\% + ((70 - 40) / (90 - 40)) * (100\% - 20\%) = 68\%$$

2. Added Min/Max Pos for actuator 2 and Warmup Factor as selections to the Main List Box. The Warmup Factor will display 0.00 when connected remotely to sites running versions earlier than 3.9h.41.
3. Changed labels for actuator 'Speed' on Equipment Schedule Actuator Edit dialog box. Button that was labeled 'Normal' is now labeled 'Accelerated' and button that was labeled 'Slowly' is now labeled 'Proportional'. 'Accelerated' should be used on systems which change slowly, such as VAV and VariZone damper control. 'Slowly' should be used on systems which change rapidly, such as boiler outlet 3-way valves or VFD control of static pressure.
4. Modified operation of actuators when there are 2 actuators in a zone, and one actuator is heating and the other actuator is cooling, VAV, or economizer. Previously, if a cooling load the heating actuator would go straight to minimum position and if a heating load the cooling/VAV/economizer actuator would go straight to minimum position. Now the actuator will modulate under all conditions and no longer go straight to minimum. If the load is negative, the heating actuator will not open until the cooling/VAV/economizer actuator has modulated to minimum position. If the load is positive, the cooling/VAV/economizer actuator will not open until the heating actuator has modulated to minimum position.
5. Changed zone configuration of actuators. If the actuator is VAV and it is changed from pressure independent to pressure dependent, the CFM settings are retained. In previous versions, these settings had been erased. This allows a zone with a failed pressure transducer used for CFM readings to be temporarily switched to pressure dependent without losing

CFM settings.

6. Changed most items in Zone Actuators configuration screen from manual/edit entry to combo-box entry.
7. Changed alarm/control function override of actuators. Previously, a specific action override to Min or Max would always set the actuator to the percent min or max position. The actuator will now be set to a CFM position if pressure independent.
8. Made change to actuator code that could lock a zone at 100% if commanded to GoTo Max and the zone could not achieve max CFM before reaching 100%.