Bailey DCS Simulator - Release Notes

Item	E/B	Description
Changes made at 5 March 2017 Release		
1	B	Previously, in LOOPBACK MODE only, the FC177 – DAANG and FC80 – STATION function block types do not report the correct block specification to connected HMI. This issue is now corrected, and these two block types now report the correct block specifications to the HMI while in Loopback mode.
2	B	Previously, Composer would receive incorrect MONITOR values for function codes types FC224 and FC225. This problem is resolved, so that Composer now displays the correct value for these two block types.
3	B	Previously, block type FC165 – Moving Average, could experience divide-by-0 error if Specification S3 was adaptively tuned to a value of 0 by the FC24 – Adapt block. This error is resolved, and it is no longer possible to encounter divide-by-0 error at this input.
4	B	Previously, the DcsOpcManager.EXE application, used to provide OPC Server interface at the Field IO API for the Bailey DCS Simulator, would spuriously fail to report some Boolean state changes. Resolved.
Changes made at 20 December 2016 Release		
1	E	Confirm that empty shall implementation of FC102 - Pulse Input/Period is present within the simulator, and remove the UNDER CONSTRUCTION message previously issued for this Function Code type. The empty shell implementation will function as follows: • Provide an write from external Field IO data source • Support write (via API) of the block output at output address N. • Block does not calculate alarms at output addresses N+1 and N+2. • If alarms at output addresses N+1 and N+2 are needed, they may also be written via API • Default status of output N+3 is "No Error". • IOAddressExport logic generates exactly ONE (1) output (Output N) record to IOAddressExport.CSV for each instance of FC102
2	E	Add support for FC211 – DADIG to HMITest utility.
3	E	Add support for additional Boolean write types at OPC DA interface for DcsOpcManager.EXE utility that provides OPC Server interface at the API (application programming interface to the Bailey DCS Simulator.
4	E/B	Resolve bug within CPU load sharing logic, seen only at Microsoft Windows 2012, that prevented loading more than 8 controller CFG files into simulator. As a result, Simulator will function correctly on Microsoft Windows 2012 64 bit operating system.
5	B	Resolve issue that caused occasional fault in inter-module communications FC126 to FC41.
6	B	Resolve bug, for BRC controller types, that prevents correct operation at controller address 31,997. Previously, simulator would generate an error message, at CFG load, for any CFG with function code at address 31,997. Error message would read "wrong block type is defined for address 8:8:7:31997 (deleted).". This issue is now corrected, and simulator now operates correctly for controllers with logic at address 31,997.
Changes made at 6 May 2016 Release		
1	B	Resolve defect in the FC80 STATION logic at specification S19 . Previously: - The code, which switches to manual (at S18=1) switches cascade/ratio state to 0(off) and switches mode to MANUAL, and then holds mode = MANUAL and cascade/ratio off. - The code, which switches to auto (at S19=1) does transfer to AUTO and holds that mode, but does not switch the cascade/ratio state to 0(off) as it should. This problem is resolved.
2	B	Resolve several issues at Quick Console faceplate for FC80 – STATION. Issues effect mode selection, vertical scale,
Changes made at 19 June 2015 Release		
1	E	A New client application, called Quick Console (QuickDCSConsole.EXE), is added to the Bailey DCS Simulator. This client supports rapid development of a table based operator console equivalent, but without the need for console software or all the console development labor effort. Quick Console Users Manual is also provided.

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Item	E/B	Description
2	E	Change **BaileySim Client | FORCE Tab | Save To file** function. The previous save file structure uses <CR> to delimit all records and fields, which makes it difficult to manually create a save file using EXCEL. Change field delimiter to comma "," instead of <CR> (NOTE: Software accepts any of **"."** or **","** or **":"** or **"/"** or **"-"** as delimiter). This permits files with large sets of FORCE addresses to be created easily in EXCEL. The same change also applies to the **BaileySim Client | WATCH Tab | Save To file** function.
3	E	To support panel graphic display in full scope operator training simulator systems with hand auto stations that are linked to FC80 – STATION tag types, two changes are made: o Support, within the existing API, is added to (a) read FC80 Mode, Set Point, Control Output, Process Variable and (b) to write Mode, Set Point, and Control Output. This change is accomplished without changing the API. The scope of this includes: o Read CO (Control Output) o Read SP (Set Point) o Read PV (Present value) o Read Mode (0 = Manual, 1 = Automatic, 2 = Cascade Ratio - Manual, 3 = Cascade/Ratio Automatic) o Write CO (Control Output) - when in MAN Mode o Write SP (Set Point) - when in AUTO Mode o Write Mode ▪ 0 - Go to Local-Manual (Console/Station-Manual) ▪ 1 - Go to Local Auto (Console/Station-Auto) ▪ 2 - Go to Local Cascade/Ratio (Control/Station - Cascade/Ratio) ▪ 3 - Go to Computer Manual ▪ 4 - Go to Computer Auto ▪ 5 - Go to Computer Cascade/Ratio ▪ 6 - Go to Local Level (Cascade/Station Level) ▪ 7 - Go to Computer Level ▪ 8 - Go to Computer Backup State - Computer OK ▪ 10 - Go to Previous State o Visual C++ source code sample, in the form of a fully functional client application interfaced to the API, has been modified to read/write the hand auto station values. This provides the means for the process simulation master computer to read/write these values, and this display the hand auto station graphics. This application is not provided as part of the Bailety DCS Simulator download, but is available to customers needing to use that interface. The process simulation host will address each station by it's L:P:M:B address.
4	E	Change **BaileySim Client | FORCE Tab | Save To file** function, to increase the maximum number of force lines from 64 to 128. The same change also applies to the **BaileySim Client | WATCH Tab | Save To file** function.
5	E	Change **BaileySim Client | FORCE Tab | Save To file** function, to add "F" indicator to clearly show which values are FORCED, and to add a right mouse click function to UNFORCE any FORCED value.
6	B	**FC9 - Analog Transfer** block modified to improve compliance with following specification "After five time constants, the output tracks the selected input." Previously this tracking was not implemented, and additional decay was permitted to occur.
7	B	**FC18 - PID Error Input** block is modified to correct a bug in internal implementation of the minimum and maximum values to prevent integrator windup.
8	E	**FC69 - Test Alarm** block modified to add support for test alarm of FC177 – Data Acquisition Analog (DAANG), and FC178 - Data Acquisition Analog Input/Loop. Support previously missing.

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Item	E/B	Description
9	B	**FC69 - Test Alarm** block modified to add support for test alarm for each of the following Harmony IO blocks: o FC222 – Analog In/Channel block o FC223 – Analog Out/Channel block o FC224 – Digital In/Channel block o FC225 – Digital Out/Channel block o FC229 - Pulse In/Channel block Support within FC69 for test of these blocks was previously missing.
10	--	Confirm that **FC87 - DLS Interface** block is implemented with NULL internal function.
11	E	**FC88 - Digital Logic Station** block is modified to support a pulse output, so that API writes to this Field Input will generate the correct pulsed signal into downstream logic. Previously a write would have been required at both leading and trailing edge to get a pulse, which creates timing difficulties.
12	B	**FC88 – Digital Logic Station** block is modified to correct behavior of output N+8. This output must be specifically set to 0. This correction is made.
13	B	**FC96 - Redundant Analog Input** block is modified to correct bug. Previously input rate was calculated over one cycle of operation. Now input rate is calculated over one full second.
14	B	**FC165 - Moving Average** block is modified to smooth the output. Previously output values were changed once a second. This caused certain erratic behavior for downstream logic. FC165 is modified to render smaller changes every segment execution period rather than larger changes at 1 second boundary. This has the effect of smoothing the FC165 output.
15	B	**FC177 – Data Acquisition Analog (DAANG)** block is modified to resolve issue. Previously, Level 2 and Level 3 alarms are not generated and reset correctly. This issue is resolved.
16	E	Add full support for Function Code FC211 - Data Acquisition Digital block
17	E	Add full support for Function Code FC212 - Data Acquisition Digital Input/Loop block
18	B	Error is corrected in API write to **FC222 - Analog in/Channel block** output N, to (a) add API error return for out of bounds API write, and (b) inhibit out-of-domain bounds error return for input class 1, 2, 5 or 9, because for these input classes Spec S3 and S4, which define domain, do not apply. Previously, no error return was generated for this block type.
19	B	IOAddressExport records for **FC222 Analog In/Channel** block output N are modified as follows: o PREVIOUS: o MINIMUM field is populated with value at Spec S3 o MAXIMUM value is populated with value at Spec S4 o Default value is populated with value (MINIMUM + MAXIMUM)/2 o The MINIMUM and MAXIMUM values are not correct for input classes 1,2, 5, or 9 o CHANGE MADE: o For Input Class (defined by Spec S2) = 1,2,5 or 9 ▪ MINIMUM field is populated with 0 (ZERO) ▪ MAXIMUM value is populated with 0 (ZERO) ▪ Default value is populated with value (MINIMUM + MAXIMUM)/2 o For all other Input Classes, no change
20	B	IOAddressExport records for **FC88 - Digital Logic Station** is previously incorrect. There should be 24 records added to IOAddressExport.CSV file for each FC88 instance, and there was a different number. This issue is corrected.
21	B	IOAddressExport records for **FC215 - Enhanced Analog Slave Definition** is previously incorrect. Previously 3 records were included in **IOAddressExport.CSV** but the correct number of records to be included in **IOAddressExport.CSV** is 0. Correction made.
22	B	Modify emulated CIU communications protocol to change CIU mode to OFFLINE upon receipt of CIU RESTART command. The CIU mode is then changed back to ONLINE mode by the appropriate command from the console, normally issued after points table has been fully constructed in the emulated CIU. The implication of this change is that exceptions are no longer received while the points table is being constructed. This mirrors native behavior more accurately.
Changes made at November 21, 2014 Release		

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Item	E/B	Description
1	E	Enhance implementation of **the FC224 – Digital IN/Channel** block, to support delivery of data to **FC42 – Digital Input/Loop** block.
2	E	Enhance implementation of **the FC224 – Digital IN/Channel** block, to support delivery of data to **FC122 – Digital Input/Infi-Net (CNET)** block.
3	E	Enhance implementation of **the FC222 – Analog IN/Channel** block, to support delivery of data to **FC26 – Analog Input/Loop** block.
4	E	Enhance implementation of **the FC222 – Analog IN/Channel** block, to support delivery of data to **FC121 – Analog Input/Infi-Net (CNET)** block.
5	E	Support has been added for **FC144 - C Allocation** function code. This support will allow CFG files that contain this function code to load, and execute normally, but this function code will not perform any function. The Bailey DCS Simulator does not support execution of embedded C programs.
6	E	Minimal support has been added for the **FC229 - Pulse In/Channel** function code. CFG files containing this function code will load and execute normally. At the present time, the exception report from this block is not supported. In addition, there is no internal totalization function within the block, because there is no input pulse stream to be totalized or measured. As this is a Field IO block, there is an entry written into the IO AddressExport.CSV file when created. Normally the output N of this block will be written via the API from an external data source. For this to be implemented in a dynamic simulation, the external software value must specifically implement at RESET to the start value when the input that is tied to FC229 spec S13 = 1, and the external software value must specifically implement a HOLD to the start value when the input that is tied to FC229 spec S14 = 1. For complete communication to this block via the API, the external software must: o Perform WRITE to address N o Perform INDIRECT READ from address N S13 (to determine RESET status) o Perform INDIRECT READ from address N S14 (to determine HOLD status) o Calculate the value to be written to output N based on RESET and HOLD status
7	B	The CLU.EXE component of the OPC Server in the Bailey DCS Simulator was previously unable to create LST file for CFG files with addresses above 10,000 blocks. This CLU limitation is removed.
8	B	Previously, there was bug that prevented load of CFG files for some COM, AMM, and LMM module types. This has been resolved.
9	-	Simply product licensing by removing the TrendViewer OCX from the QuickConsole application, and replace with an alternative control.
Changes made at May 20, 2014 Release		
1	E	For BATCH90 applications, the maximum array size is increased to 65535 elements.
2	E	For BATCH90 applications, support is added for use of user defined functions in expressions.
3	E	For BATCH 90 applications, support is added for execution of recipe without unit file, when all block addresses are defined inside program file in the BATCH DATA section.
4	E	The following additional BATCH functions are added for BATCH-90 applications, and some UDF applications, in function codes FC148, FC190, FC191, FC192, FC198 and FC199: o BREAK o WHILE ... ENDWHILE o INTEGRATOR o RAMP o SET AND WAIT o SPEC o INPUT o OUTPUT o STATE SUBR

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Item	E/B	Description
5	E	Add support for INDIRECT READS to DcsOpcManager. The following function code types currently support INDIRECT READ are: FC79, FC83, FC88, FC115, FC149, FC150, FC223, FC225, FC29, FC44 and FC49. These are all IO block types. The INDIRECT READ tag is defined in the BLOCK definition dialog box of DcsOpcServer by defining "Spec" > 0 for Read Only tag types or in the CSV configuration file as <block address>:<spec Number>. For DIRECT read the spec number is 0. For example: CSV DCSOPCMANAGER FILE VERSION 1 ##DEVICE,BACKUP,SIMULATE,DELAY,RATE,DOREADWRITE,NAME,DESCRIPTION BaileyDCSSimulator,0,0,2000,1000,0,BaileyDCSSimulator, ##MODULE,LOOP,PCU,MODULE,MODE,NAME,DESCRIPTION Group,1,1,5,3,Group, ##BLOCK,ADDRESS,FC,WRITE,TYPE,HILIMIT,LOWLIMIT,DEADBAND,NAME,DESCRIPTION Tag1,22:**0**,0,0,0,100.000000,0.000000,0.000000,Tag1,Seconds Tag315,315:**0**,68,1,0,100.000000,0.000000,0.000000,Tag315,FC68 Tag4079_10,4079:**10**,0,0,0,100.000000,0.000000,0.000000,Tag4079_10,MIN Tag4079_11,4079:**11**,0,0,0,100.000000,0.000000,0.000000,Tag4079_11,SEC Tag4079_15,4079:**15**,0,0,0,100.000000,0.000000,0.000000,Tag4079_15,ZERO Tag4079_16,4079:**16**,0,0,0,100.000000,0.000000,0.000000,Tag4079_16,ONE In this example, tag 1 reads DIRECTLY from the output at block address 22, while Tag 4079_10 is an INDIRECT READ of the output value connected upstream at to spec 10 at block address 4079.
6	B	For function code FC156, two issues are resolved, as follows: 1. If specification S15 (KA) is configured by the user to 0.0, the function code now internally substitutes a value of 1.0 for all calculations. 2. Resolves errors in internal algorithms for algorithm types (i.e. via specification S18) = 10,11,12,13.
7	B	For Batch-90 programs, several execution issues are resolved: 1. Previously the .Q (Quality) extensions .Q was incorrectly displayed as .ALM. Resolved. 2. Previously the inspect value in Debugger was incorrectly handled for BLOCK type FC. Resolved. 3. Previously the function parameters were incorrectly handled for BLOCK type FC. Resolved. 4. Previously, lines in the LST file with a number at the beginning of the line was incorrectly loaded. Resolved
8	E	Modified ***Section 3 – Install, Configure and Operate*** of the Users Manual - Batch Addendum. The section entitled Batch90.INI Configuration File on Pages - 5,6,7 is modified to alter the way programs and recipes defined: o to support recipes and programs with the same ID for multiple modules o to support different ways of recipe definitions
Changes made at September 20, 2013 Release		
1	E	Change KeyUpdate.EXE, the tool to update the USB License Key, from a command line utility to give it a graphic user interface. Add procedure to view and update the USB License key.
1	E	Significant update to the specification for the computer to host the Bailey DCS Simulator.
Changes made at September 5, 2013 Release		
1	E	Support added for Windows 7 Pro 32 Bit. Operating system support now includes: • Windows XP Pro • Windows 2003 • Windows 2008 • Windows 7 Pro 32 Bit • Windows 7 Pro 64 Bit

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Item	E/B	Description
2	E	Previously, SCSI CIU support was ONLY available for Windows XP Pro. At this release support added for SCSI CIU at Windows 7 Pro 32 Bit. This means that if emulated INICT03-SCIL (SCSI CIU) is needed, then support is ONLY available in the following operating systems: • Windows XP Pro • Windows 7 Pro 32 Bit Note that emulated SCSI CIUU communications is an OPTIONAL cost adder for all versions of the Bailey DCS Simulator. This option provides a SCSI Target Adapter Card for installation at Bailey DCS Simulator computer, and software license for SCSI. SCSI cables is a separate cost adder. Recommended SCSI Host Adapter card for connection to this SCSI Target Adapter card is Adaptec 29320LPE or Adaptec 29160 (not 29160N) card.
3	E	License model is changed to support several versions of the Bailey DCS Simulator: • **Initial (INIT**) – This is a low cost initial version for evaluation and is the starter kit for ALL users. • **HMI Test (HMI)** – This version is specifically for test of HMI. • **Composer Companion (CC**) – This version is specifically intended to install together with ABB Composer EWS (or WinTools EWS) to be used for test of CFG logic before its installed in the real unit. • **Operator Training Simulator (OTS)** – This version is what we've been selling for 7 years now, and is used as a component for Operator Training Simulator systems. • **Custom** – Special purpose custom configurations are also available if needed. The new HMI and CC versions allow Previse to sell our Bailey DCS Simulator at significantly reduced pricing, for these special purpose uses.
4	E	License Version of the Bailey DCS Simulator now displays at the Message Tab of the BaileySim Client.
5	E	All simulation mode states now display at the DCS Tab of the BaileySim Client.
6	E	Controller type BRC410 now supported at ***default.INI*** file.
7	E	OPC Server for Bailey DCS now added to Bailey DCS Simulator and provided at no change. The Bailey DCS Simulator now provides two OPC Servers, as follows: • (NEW) OPC Server for Bailey DCS connects to the Bailey DCS Simulator at the emulated CIU port and provides: o OPC Server which emulates core operator console exception based function, and provides all console tag database data to an OPC Data Access v2.0 read/write interface and OPC Alarms and Events 1.0 interface o You may connect any OPC Client HMI software to this OPC Server to make emulated operator console function. o This OPC Server provides a very high speed Server of all operator console data. o There are multiple FREE OPC Data Access clients that can be used to emulate simple console function, to monitor values or simulate operator commends.. o This OPC Server must host together on the same machine with the Bailey DCS Simulator. • (PREVIOUSLY EXISTING) OPC Manager application connects to the Field IO Interface, and provides a means to read/and write Field IO and other inputs and outputs to L:P:M:B addresses within the DCS logic.
8	E	Bailey DCS Simulator has been upgraded to support Remote License Upgrade, to simplify purchase and delivery of small license upgrades, and annual support licensing. Previse will accept credit card purchase of small upgrades, and will deliver your license upgrade via email.
9	B	Several corrections have been made to FC156 – Advanced PID Controller. These include: • Resolve error in way that spec S15 is handled • Implement support for FC156 algorithms spec S18 = 10, 11, 12, 13.
10	B	Resolve issue with low alarm status (output N+2) for FC85 – Up/Down Counter.
Changes Made at July 7, 2012 Release		

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Item	E/B	Description
1	B	Behavior of RCM block FC62 is changed such that output value of the block set to 0 when permissive Spec S2 is equal to 0
2	E	Behavior of BSEQ block FC148 is modified such that it behaves slightly differently when executed in BRC type controllers, from all earlier controllers (MFC/MFP and others), in accordance to ABB documentation. The change relates to FC148 behavior when the setpoint SP is set from within a Batch program with certain values of setpoint tracking mode spec S29. The specific changes is as follows: • In BRC - writing setpoint SP from the Batch90/UDF code DOES NOT override SP track signal S29 even if FC80 is in setpoint tracking mode (<S29> = 1) • In earlier controllers – writing setpoint SP from the Batch90/UDF code DOES override SP track signal S29 even if FC80 is in setpoint tracking mode (<S29> = 1)
3	B	Previously, the Bailey DCS Simulator would support multiple recipes, for multiple FC148 blocks in each controller, but the recipe ID for each of those recipes must be different, and if it happened that two of the different recipe for different FC148 happened to have same recipe ID then the recipe would not load correctly. This restriction is removed. Now, the recipe will load and execute correctly, even if two recipe for different FC148 happen to have same recipe ID number.
Changes Made at June 18, 2012 Release		
1	E	BaileyDCSDesigner application is released for use at first client. This application is used to manage a low fidelity model.
2	B	Resolve issue at FC177 – DAANG block that caused operator console display of ???? even though valid values in block. Problem will not appear for all FC177, as it's related to how the FC177 was configured for use.
Changes Made at January 30, 2012 Release		
1	E	Performance of Bailey DCS Simulator is substantially improved on multi-core computers by spreading the load across multiple cores. This is specifically needed for systems with a large number of UDF blocks, and results in a 5X or better performance gain on systems with 8 cores.
2	E	Bailey DCS Simulator support is added for the following Function Codes: - FC190 - User Defined Function Declaration - FC191 - User Defined Function 1 - FC192 - User Defined Function 2 - FC198 - Auxiliary Real User Defined Function - FC199 – Auxiliary Digital User Defined Function
3	E	Batch Debugger application, which previously supported Batch Sequence Block (FC148) now supports User Defined Function 1 (FC191) and User Defined Function 2 (FC192).
Changes Made at November 29, 2011 Release		
1	E	New HMI test functionality is added. This functionality is more precise than was previously provided, and supports: • definition of an MDB test input file • single step through test cases, tag by tag, with list of graphics on which that tag appears • exercise each tag though wide range of options at each test case, while observing graphic • Generate MDB test output file.
2	E	CIUCHANNEL line is modified at the default.INI file to support definition of CIU at given L:P:M address, without actually assigning a COM or SCSI port to it. The reason for this is so that simulator will support module status requests to that L:P:M address without actually using a USB Key license slot.
3	E	CONTROLLER line is modified at the default.INI file to support definition of controller at given L:P:M address, without actually assigning a CFG file to it. The reason for this is so that simulator will support module status requests to that L:P:M address without actually using a USB Key license slot.
4	E	PCU line is added to default.INI file. The reason for this is so that simulator will support module status requests to that L:P address. Some consoles will fault if a valid PCU status is not returned in response to status request. This change means that there is not a need to remove the PCU status request from these consoles.
5	E	Improved diagnostic messaging, to the event log, is provided for CIUCHANNEL, PCU & CONTROLLER lines within default.INI file, to assist in getting contents of default.INI correct.

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Item	E/B	Description
6	E	Improved diagnostic messaging is provided if status request is received for non-existent L:P:M address within simulated DCS.
7	E	The CIU line, within the default.INI file is hereby considered obsolete for all serial RS-232 CIU emulation. All serial RS-232 CIU emulation should now be provided with the newer, and more functional, CIUCHANNEL line. Though the CIU line is removed from documentation, support for it may remain within the product function for some further releases.
8	E	Bailey DCS Simulator behavior in response to various TIME commands (set time and date, set time, set time stamp) received from HMI is improved. Internal simulator clock used to manage simulator operations is separated from "wall clock". Potential for a time offset between Simulator Wall Clock time and hosting computer Local time has been introduced (offset defaults to 0). Multiple time zones not supported.
9	B	Resolve issue which caused simulator client to crash.
10	B	Resolve minor issue at Points Table export (to CSV). Previously Points table showed incorrect CONNECTED status for Harmony block types (FC222, FC223, FC224, Fc225. This is corrected.,
11	B	Resolve minor issue at Points Table export (to CSV). Previously Points table showed incorrect MATCH status for Harmony block types (FC222, FC223, FC224, Fc225. This is corrected.,
12	B	Resolve issue at FC194 – User Defined data Export FC implementation. Corrected an error in Establish and Connect portion of communication protocol.
13	B	Resolve issue at Harmony IO blocks FC222, FC223, FC224, FC225. Previously, console communications did not work correctly. Now resolved.
14	E	Added support for 800xA PPA CIU communications.
15	E	Added support for OIS45 serial CIU communication. Previously this support was present, but there were problems responding to certain status requests from OIS45. These issues resolved.
16	B	Previously problems were reported with BaileySim client reading and writing specifications at block address > 10,000. Resolved. BaileySim now reads and writes specifications for all block addresses.
17	B	Previously the maximum address space for BRCx00 controller was 30,000 blocks. Maximum address should be 31, 998. Problem corrected, and tested with CFG files with addresses to 31,998.
Changes Made at August 29, 2011 Release		
1	B	Bug found and resolved, in response to CIU communications command READ ENHANCED BLOCK OUTPUT, frequently used by Composer. Command was occasionally misinterpreted, and results in failure to respond, and even log message REPLY_TIMEOUT_OF_LOOP_RESPONSE
Changes Made at August 19, 2011 Release		
1	E	Add support for CIU communications to ABB PGP (Power Generation Portal) HMI console. Key changes required to add this support are included in this release.
2	E	Modify CIU communications to add Work Flag to all appropriate command responses when the Work Flag bit instruction is received at the RESTART command received from the HMI.
3	E	Add support within default.INI file to create instance within simulator of PCU (or CIU) without an associated CFG file. This is created via line (within default.INI) such as: CONTROLLER,INNPM01,1,1,0 Modules added to simulator in this way are always reported with GOOD module status
4	E	If any HMI attempts to establish a point, when the same point (and same point type) is already established at that address then a positive response will be returned. This is because some consoles attempt to establish the same point multiple times.
5	E	Add support within CIU emulation to set RS-232 communications parity, via change to CIUCHANNEL line at default.INI, as follows: No parity CIUCHANNEL,INICT03:E0,13,3,COM1:19200 CIUCHANNEL,INICT03:E0,13,3,COM1:19200:N Odd Parity CIUCHANNEL,INICT03:E0,13,3,COM1:19200:O Even Parity CIUCHANNEL,INICT03:E0,13,3,COM1:19200:E

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Item	E/B	Description
6	B	At CIU emulation, add exceptions for RMSC block type to response to ReadDataGroup command. Was previously omitted in error. ReadDataGroup command is not used by most consoles, but is used for PGP.
7	B	Several improvements have been made to CIU serial RS-232 communications. These changes were directed at improving CIU communications robustness in the face of various events.
8	B	Bug was found and fixed in establishing module status for modules of type CIU and PCU (modules at address LOOP:PCU:0 with no associated CFG file)
Changes Made at July 8, 2011 Release		
1	E	Support is confirmed for INICT12 CIU emulation, including valid CIU module status.
2		Bailey DCS Uses Manual is improved to clarify that Field S_S (of BaileyWrapTable within IO.MDB used by DCSIOManager) shall: • be of data type INTEGER (FLOAT is supported also, but Previse recommends use INTEGER) • contain INTEGER spec number in domain (NULL, 0, 1, 2, … N) • S_S field value of NULL or 0 will generate DIRECT READ at block address givem • S_S field value of <valid spec number in format INTEGER> will generate INDIRECT READ at upstream address connected to the specification.
3	B	Issue corrected at DCSIOManager which prevented correct INDIRECT READ from some field output block types. Previously ***Read LPMB:S<base + N>*** all returned the same output value as ***Read LPMB:S<base>***
4	B	Incorrect FC behavior at Harmony digital Channel IO blocks (FC224 and FC225) has been corrected. Previously, blocks generated inverted alarm sense with respect to Alarm State specification (FC224 S2 and FC225 S3)
5	B	Problem has been reported whereby Bailey DCS Simulator will occasionally crash and exit memory at time of High Composer usage (monitoring, tuning and changing CLD's with monitor running). To address this, improvements have been made to serial driver robustness, and changes have been made to error reporting, including event log errors, with respect to specific communication protocol commands expected from Composer. If further issues of this nature are encountered, user is requested to provide (FTP arrangements will be made): - Application event log - set of CFG files and default.INI file in use - DCS state file captured IMMEDIATELY prior to transfer from MAN to AUTO - Composer project with all CLD - Identification of CLD monitor and change actions that were being performed at Composer at time of faiult event (including CLD name) If possible, try to repeat the fault, to see if it occurs again with same Composer actions.
6	B	Problem has been reported with behavior of FC156 Advanced PID. Problem occurs when FC156 specification S20=1, and manifests as significant control bump, and possible loss of control, on transfer form MAN to AUTO. Previse has made FC156 changes intended to resolve this issue. There is some question remaining if behavior will be correct. If any user encounters an issue with FC156, at transfer from MAN to AUTO, please provide: - L:P:M:B address of misbehaving FC156 - set of CFG files and default.INI file in use - DCS state file captured IMMEDIATELY prior to transfer from MAN to AUTO.
Changes Made at June 26, 2011 Release		
1	E	COMMENT field added to BaileySim FORCE tab, so that a mnemonic name can be given to forced values.
2	E	Support has been added for the BATCH-90 PROGRAM DESCRIPTOR function.
3	B	Resolved issue at function code FC45 – Digital Exception Report. Previously, when specification S2=2 AND FC45 block value was over-ridden via the BaileySim client FORCE function the block would generate an alarm. This problem is resolved, and the block no longer generates an alarm under these circumstances.
4	B	Resolved issue at function code FC34 - Memory . Previously the block would provide an erroneous INITIAL CONDITION under specific input specifications settings. This problem is resolved.
5	B	Resolved issue at function code FC148 – Batch Sequence (BSEQ). Previously FC148 block output N+3 did not get set to 1 when fault logic is active. This problem is resolved and FC148 output N+3 now sets to 1 when fault logic is active.

Bailey DCS Simulator - Release Notes

Item	E/B	Description
Changes Made at April 5, 2011 Release		
1	B	Change FC104 output N to REAL instead of INTEGER.
Changes Made at April 2, 2011 Release		
1	B	Resolve issue at BaileyWrapTable write to FC104.
Changes Made at March 31, 2011 Release		
1	E	Changes made to previous implementation of Harmony Channel IO function codes: • FC222 - Analog In/Channel • FC223 - Analog Out/Channel • FC224 - Digital In/Channel • FC225 - Digital Out/Channel Previously, a block frame was present to support each of these FC. Revision has been made to add further console support for each of these blocks including: • Specification and process exceptions and alarms • Tuning from Composer
2	E	Support is added, in the form of a block frame without internal function (as none is needed) for each of the following Harmony Channel IO function codes: • FC221 - I/O Device Definition • FC226 - Test Status Block Output • FC227 - Gateway (Harmony) • FC228 - Foreign Device Definition • FC229 - Pulse In/Channel
3	E	Implementation of function code FC104 - Pulse Input/Totalization is modified. This is an IO block, and previously supported direct write of field input signals via API. However, since the output of this block is a pulse count totalization, rather than a pulse frequency, it would have been required to write the block output at high frequency to maintain downstream logic function. Change is made, such that field input values written to this block via API will be pulse rate (in counts/second) instead of absolute totalized counts. Coincident with this change, support is added for other block functions including reset, hold, alarm, start value, and increment/decrement, so that overall logic intent can be maintained. Please note that field IO vales written to this block must be written with Operation Code 1 (field IO) instead of operation code 3 (force). Please refer to DCSIOManager and API manual for further guidance.
4	B	Resolve Batch 90 emulation issue in which a comment appended at end of line was not properly handled as a comment. *e.g. BLOCK FIC_0244_OUT_1, FC = BBUF,\ {ok per tab}*
5	B	Resolve Batch 90 emulation issue in which a variable defined within a B90 program files was subsequently used within a recipe. Previously, the variable was not correctly interpreted in the recipe. Now it is.
6	E	ABB Batch 90 considers only the first 16 characters of subroutine name, in determining which subroutine is called from calling location. This means that ABB Batch Manager is tolerant of syntax mismatch, after the first 16 characters, between the subroutine call and the actual name of the subroutine. Such syntax errors generate a compiler WARNING, but are compiled nonetheless. At this release Bailey DCS Simulator function is modified to also be tolerant of such syntax difference, while alerting the user, via event message, to syntax error existence.
Changes Made at March 5, 2011 Release		
1	E	Supported is added for emulation of ABB Batch 90 functions. This support includes: • Bailey DCS Simulator can now execute Batch 90 programs, in compiled LST format. • Recipe's, in TXT format, are supported. • New DcsBatchDebugger client is added. • Addendum is added to Bailey DCS Simulator Users Manual for Batch 90 emulation features. This manual describes the subset of the Batch 90 language that is not supported in this emulation.

Bailey DCS Simulator - Release Notes

Item	E/B	Description
2	E	Support is added for the following block types. This support is part of the emulated Batch 90 support: • FC148 – Batch Sequence • FC194 – User defined data export • FC219 – Common sequence • FC220 – Batch Historian (the framework for this block is supported, but internal historian functions are not supported)
3	E	Numerous changes and enhancements are made to the DCSIOManager functions including: • Add BaileyWrapTable IO format to MDB file in response to various requests to make the IO database easier to manage. • The TXT format for managing IO database is now obsolete • Add support for setting default value for all Field Inputs • Discontinue use of log file for error messages, and route all error messages to Microsoft event log, so that they appear in message tab of BaileySim client. • Improved error messages for startup, shutdown, and file loading issues
4	E	Improve error messaging when CIU is defined with L:P:M address conflicts in DCS addressing as defined in default.INI file.
5	B	Resolve problem at FC129 Multistate Device Driver in which FC69 – TSTALM failed to show correct alarm state for MSDD block when in override mode.
Changes Made at January 12, 2011 Release		
1	B	Resolve issue at FC19 – PID which prevented bumpless transfer from STATION manual to auto mode. Problem manifested as discontinuous CO output at STATION mode change. No other change made at this release.
Changes made at November 19, 2010 Release		
1	B	Resolve minor CIU communication protocol issue with respect to analog and digital report block types.
Changes made at November 9, 2010 Release		
1	B	Resolve software bug that prevented correct restore of block specifications via the API Restore DCS State function. This function is documented in the *Technical Manual - Bailey DCS Simulator API* and requires that a " /spec" string be appended to the file name at restore via the API. This function will overwrite specification changes made since the time the DCS state file was saved.
Changes made at October 21, 2010 Release		
1	B	Eliminate potential cause of buffer overrun in serial COM port communications. This change is made to improve robustness of serial port communications.
2	E	Improve error messages related to serial port communication issues.
Changes made at September 29, 2010 Release		
1	B	Resolve issue in Bailey DCS Simulator in which exception report for RCM tag type occasionally is responded with 5 bytes instead of 2 bytes. This may manifest at console as bad quality for some tags, but no necessarily the RCM tag type. It is also possible that this problem (Bad Q tags) MAY or MAY NOT clear after a time.
Changes made at June 28, 2010 Release		
1	E	Substantial enhancement to IOAddressExport function at BaileySim Client Debug Tab. This function scans all CFG files that are loaded, and exports an CSV file with one record per expected Field Input or Field Output. This function works by scanning for block types that perform IO functions. Function has been expanded to increase the number of IO block types support. The total list of supported block types for the IOAddressExport function is now as follows:

Bailey DCS Simulator - Release Notes

Item	E/B	Description
		• FC27 - Analog Input • FC28 - Analog Output (Same PCU Node) • FC29 - Analog Output • FC43 - TCS Digital Input • FC44 - TCS Digital Output • FC49 - Digital Output Buffer • FC55 - Hydraulic Servo • FC70 - Analog Point Definition • FC79 - Control Interface Slave • FC83 - Digital Output Group • FC84 - Digital Input Group • FC93 - BASIC Real Output • FC94 - BASIC Boolean Output • FC102 - Pulse Input/Period • FC103 - Pulse Input/Frequency • FC104 - Pulse Input/Totalization • FC107 - Group I/O Definition (IMLMM02) • FC109 - Pulse Input/Duration • FC114 - BCD Input • FC115 - BCD Output • FC132 - Analog Input/Slave • FC137 - C and BASIC Program Real Output With Quality • FC138 - C or BASIC Program Boolean Output With Quality • FC145 - Frequency Counter/Slave • FC149 - Analog Output/Slave • FC150 - Hydraulic Servo Slave • FC158 - Enhanced Analog Point Definition • FC215 - Enhanced Analog Slave Definition • FC216 - Enhanced Analog Input Definition • FC222 - Analog In/Channel • FC223 - Analog Out/Channel • FC224 - Digital In/Channel • FC225 - Digital Out/Channel • FC229 - Pulse In/Channel
Changes made at April 16, 2010 Release		
1	B	Resolve problem that caused Bailey DCS Simulator to crash (Dr. Watson) at load of SOME but NOT ALL CFG files from versions of ABB Composer earlier than 5.0. Issue relates to Function Block specifications in the form of ASCII strings. Problem is resolved and crash will no longer occur. This problem was introduced at 26 march 2010 release, and will not affect earlier releases.
Changes made at March 26, 2010 Release		
1	E	Some customers have reported issues with Composer EWS communications to the simulator. As part of a strategy to reduce such issues, support is added for a new default.INI command named CIUCHANNEL. This command permits a more flexible definition of emulated CIU parameters, such that any CIU can be defined as INICT03 or INICT01 (as well as other types which may not be documented to end users). In response to a request, from EWS or console, for the emulated CIU to identify what CIU TYPE it is (as well as other parameters), this command permits the emulated CIU to auto-announce itself as any selected CIU type.
2	E	Communication with ABB Composer, version 5.0.3 tested and confirmed. The following specific functions have been tested with Composer 5.0.3 for module types MFC, MFP, BRC, LMM, COM and AMM: - switch to CONFIG mode - switch to EXECUTE mode - initialize controller to delete all function codes - Load configuration to a controller directly from Composer via the CIU - Monitor CAD sheet - Tune function codes - Display controller status report from a emulated controller - Use the Composer VERIFY function to verify (i.e. compare) the controller configuration with the CLD files (Control Logic Documents) for this controller (currently tested only for MFC, MFP, BRC) - Save configuration from an emulated controller to a CFG file (tested with Composer 5.0.3 only for MFC, MFP, BRC) - Composer VERIFY and SAVE currently works only for MFC, MFP, BRC module type.
3	E	The CONFIG mode of controller behavior has been modified for controller types MFC, MFP, BRC, LMM, COM and AMM. Before, when the controller was in CONFIG mode, function codes did not execute, outputs switched to Bad quality, and exception processing was suspended. Now, all function codes are disconnected from all CIU and from other function codes so that the controller can be initialized (i.e. all function codes deleted) and a new configuration can be loaded from the EWS via emulated CIU.
4	E	A new data type "String" (E90STRING) has been implemented to improve support for tuning function codes that uses the "String" data type and to improve the LOAD and SAVE CFG files operations for Function Codes that use "String" data type for specifications.
5	E	Numerous (50+) changes have been to function code specifications at various Function Codes, to improve LOAD, READ, TUNE and VERIFY operations from the Composer EWS.
6	E	Serial communication speed for emulated CIU has been improved, such that response time now depends primarily on the selected COM Port baud rate for the emulated CIU.

Bailey DCS Simulator - Release Notes

Item	E/B	Description
7	E	An empty frame, without internal FC implementation, has been added for each of the following Function Code Types: ***32, 57, 98, 100, 102, 114, 115, 116 ,134, 141, 142, 144, 148, 150, 152, 153, 154, 155, 169, 170, 184, 185, 186, 187, 188, 190, 191, 192, 193, 194, 198, 199, 210, 211, 212.***. Previously, without this frame, it may not have been possible to execute a CFG file that contained one of these unsupported blocks (and an error message was logged to say so). Now, with these frames implemented, these blocks (though not implemented internally) will not impede execution of the CFG file. An "Under Construction" error message is issued when Function Codes of the type noted here are encountered..
8	Issue	KNOWN ISSUE – The old (i.e. Net 90 vintage) LMM, COM and AMM controller types do not provide an FC89 (Last Block) function code or equivalent. As a result, certain Composer operations (e.g. READ and VERIFY), that require a LAST BLOCK marker do not work, because Composer can not determine the last block address. Additional communications protocol support (i.e. Module Information Commend) is required to support certain EWS operations. This limitation is known to impact LMM, COM and AMM controller types.
Changes made at December 11, 2009 Release		
1	B	Resolved problem in FC3 - Lead/Lag that caused bump at transfer. Transfer is now bump less.
2	B	Resolved issues at FC18 - PID Error Input that prevented bump less transfer. Transfer is now bump less.
3	B	Resolved issues at FC103 - Pulse Input/Frequency and FC104 - Pulse Input/Totalization which did not interact correctly with field IO read/write via API.
4	B	Resolved potential floating point arithmetic error at FC7 - Square Root, FC156 - Advanced PID Controller,FC171 – Trigonometric, and other blocks which may cause issues in specific arithmetic situations.
5	B	Previously, the response to POINT_MODSTAT_READ and POINT_RCM_READ were incorrectly reported in response to READ EXCEPTIONS. This has been corrected so that these responses are correctly reported in response to READ MISCELLANEOUS STATUS EXCEPTIONS . This will only affect a limited number of console types that use very old Bailey DCS protocols.
Changes made at September 29, 2009 Release		
1	E	Add support for the following additional function codes. Limitations, in any, are described in the Users Manual Appendix A: • FC109 - Pulse Input/Duration • FC221 - I/O Device Definition • FC226 - Test Status • FC247 - Condition Monitoring
2	E	The Bailey DCS Simulator (via external application DCSOPCManager) can now act as an OPC Data Access v2.0 Server, providing OPC DA read/write access to any address within the simulated DCS. At present this function is at beta release. Contact Previse if you need to use this
3	B	Resolve problem in reading specification format for FC226 - Test Status. This problem was observable as "invalid Spec format" message at event log.
Changes made at July 11, 2009 Release		
1	E	Documentation improvements made throughout.
2	B	Resolved problem in chained block implementation for FC161 - Sequence Generator.
Changes made at October 15, 2008 Release		

Bailey DCS Simulator - Release Notes

Item	E/B	Description
1	E	Add support for the following additional function codes. Limitations, in any, are described in the Users Manual Appendix A: • FC5 - Pulse Rate • FC20 - Indicator Station • FC21 - M/A Station (Basic) • FC22 - M/A Station (Cascade) • FC23 - M/A Station (Ratio) • FC27 - Analog Input • FC29 - Analog Output • FC43 - TCS Digital Input • FC44 - TCS Digital Output • FC53 - Executive Block (COM) • FC71 - Executive Block NAMM02/IMAMM03 • FC72 - Analog Slave Definition • FC73 - Calibration • FC77 - Analog Point Service Status • FC78 - Trend Definition • FC87 - DLS Interface • FC88 - Digital Logic Station • FC99 - Sequence of Events Log • FC105 - Executive Block (IMLMM02) • FC106 - Segment Control Block • FC107 - Group I/O Definition (IMLMM02) • FC108 - Extended Executive (IMLMM02) • FC158 - Enhanced Analog Point Definition • FC159 - Polynomial Adjustment • FC222 - Analog In/Channel • FC223 - Analog Out/Channel • FC224 - Digital In/Channel • FC225 - Digital Out/Channel • FC227 - Gateway (Harmony) • FC228 - Foreign Device Definition
2	E	Modify the USB license key to increase the maximum number of controller modules supported from 100 to 500. This doesn't change the maximum number of blocks that can be supported, as this is constrained by system resources. Currently the largest system in-service is 170,000 blocks.
Changes made at May 23, 2008 Release		
1	E	The MOD line in the default.INI file is now obsolete and is replaced with a new CONTROLLER line. The MOD line will continue to be accepted at this version, but will be removed at a later version. This change is made in preparation for support of specific aspects of various controllers. Previously all controllers were treated as being the same. Going forward certain differences between controller types will be supported.
2	E	Supported is added for BRC x00 controller modules. These controllers, the BRC100/200/300/400, have block address space to 30,000 instead of previous limit of 10,000. Module status returns to connected console/EWS devices for BRC controller modules are confirmed.
3	E	The Bailey DCS Simulator (via external application DCSIOManager) can now act as an OPC Data Access v2.0 Client, providing read/write capability to any compatible OPC Data Access Server. Refer to Users Manual Appendix K for further information and configuration instructions.
4	E	An external application (DCSIOManager) is added to support "IO Wrap Around", such that any analog or digital value can be read from an arbitrary L|P|M|B block address and written back to another arbitrary L|P|M|B block address. This supports the addition of process simulation within Bailey block logic (i.e. CAD files compiled to CFG files), without the need to modify the control logic CAD sheets to connect process simulation IO to control logic IO. The control logic can be used "as-is", without the IO mapping previously required.
5	E	Support, previously present but not used, for multiple controller segments, is now confirmed.
6	E	Support is added for connection by ABB Composer version 5.0

Bailey DCS Simulator - Release Notes

Item	E/B	Description
7	E	The following support is now available for any organization that wishes to develop an application, or write software, that connects to the Bailey DCS Simulator: • The API is described in ***Technical Manual – Bailey DCS Simulator API*** • A sample application, with source code available in Microsoft Visual C++, to connect to the API is available to simplify the task of writing software to this API. • A simple "***Hello World***" application is available, to execute inside the simulator, to provide a simple yet fully functional application to help test API read/write functions. • Previse can provide web base training, nominally ½ day in duration, and additional web based assistance as required.
8	E	Previse has developed a standard semi-automated process to prepare a complete and reliable IO List at the field IO Interface. This IO List is keyed on Instrument number and is needed to connect an external process simulator to the simulated DCS logic. Ask about this if you need an IO List or need to connect an external process simulator.
9	B	Resolve issue which caused high exception rate to console when alarms disabled in BaileySim Alarms tab.
10	B	Several issues have been resolved in the IO Address Export function, including: • Previously no records were included for FC149 blocks (Analog Output Slave). FC149 records are now included in the IO address Export Function for this FC. • Previously, records relating to output blocks were marked as USED even though the related Specification was connected to an output of the Executive block with a default fixed value. These records are now marked as SPARE outputs.
11	B	Previously, simulator responded to commands READ BLOCK OUTPUT and READ ENHANCED BLOCK OUTPUT with the same response bytes, providing all analog values in Bailey REAL3 format (3 bytes). This caused problems with Composer v5.0 when connected to emulated BRCx00 controller module, where Composer expected analogs in REAL4 format (i.e. 4 bytes instead of 3). Emulated CIU response for analog signals has been changed so for the READ BLOCK OUTPUT command the response is in REAL3 format and for the READ ENHANCED BLOCK OUTPUT command the response is in REAL4 format.
12	B	Block tuning functions have been modified to provide REAL3 and REAL4 responses in a manner which matches standard Bailey function.
13	B	Resolve issue which occurred at install and uninstall of Bailey DCS Simulator. Previously system would generate a Dr. Watson error message and crash at exit.
Changes made at January 29, 2008 Release		
1	E	Support added for Function Code FC133 – Smart Field Device Definition
2	E	Support added for serial communication baud rates above 19.2 Kbaud. Previously supported only the same baud rates as typically supported by actual ABB serial CIU hardware (i.e. to 19.2 Kbaud). Now all baud rates that are supported by the simulator PC hardware platform are supported. Tested to 230.4 Kbaud.
3	E	Support added for console connection by Emerson DeltaV Connect, for DeltaV consoles.
4	E	Support added for connection by Rovisys OPC server.
5	E	Support added for EVENT line at default.INI file. The EVENT line supports definition of event log verbosity, by suppressing some messages when no longer required for troubleshooting.
Changes made at December 21, 2007 Release		
1	E	Several features are added to support management of alarms within selected operator consoles, when connected to the Bailey DCS Simulator. These features include: 1. To mitigate initial flood of alarms at startup, all alarms can be disabled at simulator startup, and enabled at a later time. 2. Alarm ACK is shared from console to console so that alarm does not need to be acknowledged more than once (currently supported for selected consoles on SuperLoop only). 3. A global alarm ACK function supports acknowledgement of all alarms on all consoles on a manual or automated basis. To learn more about these features you will need to review: 1. ALARMS line of default.INI file (Refer to Users Manual) 2. Alarm Enable/Disable function at API (Refer to Technical Manual - Bailey DCS Simulator API). 3. Global alarm ACK function (See Users Manual and Technical Manual - Bailey DCS Simulator API).

Bailey DCS Simulator - Release Notes

Item	E/B	Description
2	E	Add support for Function Code FC157 – General Digital Controller.
3	E	To support alarm ACK functions, limited support for the following Super Loop commands has been added: - OUTPUT GROUP MESSAGE - READ PLANT MESSAGE
4	E	A function is added at the BaileySim Client to log trend data provided to a console to assist with troubleshooting trend related issues if they occur. This function is for Previse use only, and is in keeping with our philosophy to provide test instrumentation directly within the Bailey DCS Simulator to support remote troubleshooting.
5	B	FC82 – Segment control function related to spec S02 (Target period) has been modified. This has been set to the minimum allowed target period by Default.ini file. Not doing this causes some blocks (for example FC8) not work properly when Spec S02 is set to 0 within the module.
6	B	A minor defect has been repaired in Function Code FC161 – Sequence Generator
7	B	FC66 – Analog Trend and FC179 – Enhanced Trend have both been modified to change the way process state is restored at DCS state file restore. Previously the restoration of a state file occasionally caused loss of console on-screen trend data
8	B	Modifications have been made to improve the robustness of SCSI data communications within the emulated INICT03 CIU. Previously some failures were observed specifically on channel SCSI1, while channel SCSI0 seemed fine. The SCSI1 channel robustness has been improved.
Changes made at August 9, 2007 Release (This is an extensive revision)		
CIU Communications		
1	E	Add support for emulated INICT03-SCSI interface. The Bailey DCS Simulator will now support: ▪ A Total of 8 simulated CIU channels at any given time. ▪ 0, 1 or 2 (but no more than 2) of these can be via emulated INICT03 SCSI communications ▪ The remainder can be any combination of INICT03 or CIU04 emulation via either serial or TELNET TCP/IP communications.
2	E	Add support for communications with ABB Composer^{IT} Engineering Workstation tools. This support includes serial and SCSI communications (emulated INICT03) the ability to load/unload controller modules, to tune blocks within controller modules, to perform module mode control while the simulated DCS is on line, and the ability to monitor CAD sheets on-line.
3	E	Add support within the Bailey DCS Simulator for communications with the Wonderware InTouch HMI through the Wonderware stack server (driver) for Bailey DCS systems.
4	E	Add support for connection via Rovisys OPC Server for Bailey DCS.
5	E	Add Support for communications with the CiTech HMI through the CiTech driver Bailey DCS.
6	E	Add support for communications, via the SCSI protocol, to ABB OIS4x consoles. Currently the Bailey DCS Simulator can support simultaneous connection to two OIS4x master consoles. Contact Previse for hardware details about how this connection is made.
7	E	Additional capability is embedded within the Bailey DCS Simulator to support remote CIU communications troubleshooting from Previse.
8	E	Add support within BaileySimClient to export the CIU Points table as received from a console connected to the emulated CIU. This is added to assist in locating console tags that are either (a) addressed to non existent blocks within the controller CFG files or (b) of a data type that doesn't match the data type for the addressed function block.
9	E	Support is added to support and respond to Establish Reports CIU communications protocols required for Conductor NT SCSI communications, as well as several additional protocols required for CiTech communications.

Bailey DCS Simulator - Release Notes

Item	E/B	Description
10	E	Substantial enhancement has been made to CIU protocol support, in anticipation of possible protocol requirements for several operator console products that have not currently been tested against the Bailey DCS Simulator. These protocol improvements include: ▪ Support for Read Value – List and Read Value – Group ▪ Support for Read Status – List and Read Status - Group ▪ Support for Read Miscellaneous List and Read Miscellaneous - Group ▪ Support for Read Station – List and Read Station – List ▪ Support for Read Data – List and Read Data – Group ▪ Support for Establish Report and related messages ▪ Improved error handling ▪ Improved responses to unexpected console commands ▪ Time synchronization
11	E	Add support for Time Synchronization between Bailey DCS Simulator and connected console equipment. This function is configured via a new line in the ***default.INI*** file.
12	E	Add support to time stamp exceptions prior to sending to console. This feature is (optionally) requested by the operators console.
13	E	Add background exception screening mode to support management of exception traffic related to background exceptions. See BESC line in default.INI.
Function Code Support		
14	E	Add support for the following additional Bailey DCS Function Codes: ▪ FC 55 - Hydraulic Servo ▪ FC 66 - Analog Trend ▪ FC 91 - BASIC Configuration (MFC/MFP) ▪ FC 92 - Invoke BASIC ▪ FC 93 - BASIC Output Buffer – Real ▪ FC 94 - BASIC Output Buffer – Boolean ▪ FC 117 - Boolean Recipe Table ▪ FC 118 - Real Recipe Table ▪ FC 124 - Sequence Monitor ▪ FC 128 - Slave Default Definition ▪ FC 137 - BASIC Real Output Buffer with Quality ▪ FC 138 - BASIC Boolean Output Buffer with Quality ▪ FC 139 - Passive Station Interface ▪ FC 143 - Invoke C ▪ FC 145 - Frequency Counter/Slave ▪ FC 146 - Remote I/O Interface ▪ FC 147 - Remote I/O Definition ▪ FC 161 - Sequence Generator ▪ FC 178 - Data Acquisition Analog Input/Loop ▪ FC 179 - Enhanced Trend Definition ▪ FC 215 - Enhanced Analog Slave Definition ▪ FC 216 - Enhanced Analog Input Definition ▪ FC 217 - Enhanced Calibration Command ▪ FC 226 - Test Status Block Outputs ▪ FC 241 - Distributed SOE SEM-MFP Interface ▪ FC 242 - Distributed SOE Digital Event Interface ▪ FC 243 - Executive Block (INSEM01) ▪ FC 244 - Addressing Interface Definition ▪ FC 245 - Input Channel Interface For all Function Codes, refer to the appendices in the Users Manual, Bailey DCS Simulator for implementation notes for each Function Code. Contact Previse if you require more detailed Function Code information.
15	E	Improvements have been made to the manner in which most FC82 – Segment Control specifications have been implemented. This affects exception timing, PID behavior, dead bands and sequencing throughout. Support is added for optimal sequencing as selected by spec S15 of FC82.

Bailey DCS Simulator - Release Notes

Item	E/B	Description
16	B	Resolve problem in FC129 – MSDD which prevented operator console control under specific override condition. Behavior modified to match native MFC/MFP behavior.
17	B	Resolve problem in FC4 – Pulse Positioner which gave incorrect output value when Specification S6 (Cycle Time) is set to 0. Behavior modified to match native MFC/MFP behavior.
18	B	Repair several minor bugs in STATION (FC80) block
CFG file Management		
19	E	Previously, at May 8, 2006 release, support was added to (optionally) save CFG files at exit from Bailey DCS simulator, and support was added within default.INI file to define whether CFG files would be saved at exit or not. CFG file save function is changed as follows: ▪ If default.INI switch enables the function, CFG files are saved when they are changed rather than at exit. ▪ Additional CFGFileSave function is defined at API to permit external control of this function CFG files can now be saved: ▪ Under host computer control via the API ▪ Under manual control via the BaileySim Client ▪ Automatically at any control program change (including tuning) if auto-save selected at ***Default.INI***
20	B	Repair problem in opening Composer format CFG files.
IC Save and Restore (DCS State Files)		
21	E	Add support to define arbitrary file path for DCS process state files (IC files). The path for these files is now defined within the ***default.INI*** file.
22	E	Change made to issue exceptions to console immediately at IC (DCS state file) restore, before entering EXECUTE state, rather than waiting until mode change from PAUSE to EXECUTE is made. This is intended to help stabilize the console graphics as soon as possible in an operator training simulator.
23	E	Changes have been made to improve the manner in which IC (DCS state file) is restored, particularly when there has been an intervening controller logic file (CFG file) change since the DCS file was saved.
BaileySim Client		
24	E	Add Force Tab to BaileySimClient. This function allows the user to ***force*** any block address within the DCS to a desired value.
25	E/B	Several usability improvements and bug fixes have been made to the BaileySimClient.
Other Changes		
26	E	Add support for a high performance API specifically intended for field IO communication with external process simulation. This API is documented in the Technical Manual - Bailey DCS Simulator API also located on this CD-ROM.
27	E	Add support to generate a list of IO points required for API directly from CFG files. This can be used to seed the process to generate the final IO list, or to cross verify the IO list used for external process simulation.
28	E	Extend execution speed throttle domain from (1 X < > 10 X real time) to (0.1 X < > 10 X real time)
29	E	Add support for the following two additional license switches on the USB License Key: ▪ Enable or Disable API ▪ Enable or Disable SCSI CIU emulation Please note that the "old USB Key" (for versions prior to this version) will not work and will need to be replaced with a "new USB key". If you are a licensed user there will be no charge for this key upgrade. Please contact Previse to arrange for a USB key exchange.
30	E	PerfCPU and PerfSlip performance monitoring tools added to Watch tab to support observations of average CPU load by simulator and average simulator slip WRT real time.
31	E	Improvement performance instrumentation via further implementation of outputs from FC82 Segment control block. Contact Previse if you require further details.
32	B/E	Numerous robustness and performance improvements throughout the Bailey DCS Simulator.
Changes Made at May 22, 2006 Release		
1	E	Add Test Tab function to support HMI testing and commissioning. Add Sample Test Files to CD-ROM.
Changes Made at May 8, 2006 Release		

Bailey DCS Simulator - Release Notes

Item	E/B	Description
1	E	Support for connection of ComposerIT to emulated CIU interface added.
2	E	Support, within the emulated CIU interface, has been added for several sub-commends within the ***Output general message*** series of commands. The sub-commands that have been implemented are *Read Block*, *Read Next Block*, *Write Block*, *Tune Block*. The impacts of this change are that: ▪ Block tuning may now be performed from Conductor NT consoles ▪ This is part of the change to support ComposerIT as above.
3	E	Support added for optional save CFG file upon simulator EXIT. Previously, if the CFG file was changed during simulator execution, the changes would be lost at simulator exit. Now the simulator can be configured so that all CFG file are saved automatically at simulator exit.
4	E	Supported added for optional ***Paused Mode***, such that simulator operation may be paused at startup, immediately after CFG file load, but before CFG execution.
5	E	Support added for a new OPTION switch (line OPTION,X,X,X,X,X) within the ***default.ini*** file.
6	E	Supported added so that EWS software may now execute an Initialize Module command when connected to the CIU interface. This supports load of new CFG file from EWS software.
7	B	Previous version exhibited possible software crash at deletion of blocks via EWS software via emulated CIU interface. Problem resolved.
8	C	BaileySimClient Debug Messages window now displays event messages taken from Windows Event Log instead of from an internal log file within Bailey DCS Simulator as before. This improves the length of log file.
9	C	***Spec_defaults.txt*** file is no longer part of the installation and is no longer used. The contents of this file have been compiled directly into BaileyDCSSimulator.exe.
Changes Made at March 22, 2006 Release		
1	B	Resolve problem affecting implementation and execution of FC171 – Trigonometric block. Problem manifested as errors in CIU communications (incorrect communications data) for FC171 (as observed at Previse OPC server connected to simulator) and as invalid and incorrect block ***Specifications*** for this block type.
2	B	Resolve problem which affects ONLY TELNET communications to Previse OPC Server and console products. This problem manifested as multiple apparent CIU in BaileySimClient CIU list, even though only one TELNET CIU actually connected. Problem caused by failure to drop TELNET connection when OPC server disconnects, which results in instantiation of additional TELNET CIU channel at next OPC server connection. This caused user problems when number of apparent CIU connections exceeds licensed CIU connections.
3	E	In preparation for substantial improvements to DCOM API functions to be provided at an upcoming release, Bailey DCS Simulator code has been restructured in order to reduce the number of threads, to provide standard access to all data, to add versioning to the state (DCS) file and improve standardization in interface to all Function Blocks within simulator. This change should not affect any user observable functionality and is not in response to any reported problem.
4	B	Resolved several minor bugs located in DCOM interface (e.g. API) to Bailey DCS Simulator. These were identified in the lab and have not been reported by any site.
Changes Made at November 28, 2005 Release		
1	E	Support added for the module (module address 0) within each PCU. If PCU module (i.e. module at module address 0) is configured into the device connected to the CIU, the Bailey DCS Simulator correctly reports a module status for this address, with module type set to INVALID. In the connecting console or driver has a module at module address 0 within any PCU, the Bailey DCS Simulator will now correctly establish the point table entry for the module and report module status with INVALID module type. NOTE that no module mode operations are supported for module address 0 (i.e. not possible to switch module from EXECUTE to CONFUGURE mode, as this is not a controller module) and that attempts to do so with a non-controller module at address 0 are not advised. To properly configure a PCU into the simulated DCS, the user will now have to make specific configuration for each PCU within the default.INI file. To configure a PCU into the DCS configuration at the ***default.INI*** file, one instance of the PCU record must be added for each PCU. For details refer to the Users Manual.

Bailey DCS Simulator - Release Notes		
Item	**E/B**	**Description**
2	E	To support addition of future features, this release adds support for a ***Module Type Table*** so that (a) the default.INI file may be used to specify specific module types at specific addresses and (b) so that module level responses may be tailored for specific module types. At present release, Bailey DCS Simulator only tailors the module response for CIU modules and for PCU base address modules.
3	E	Previous version of Bailey DCS Simulator did not respond to host computer (i.e. console) requests for CIU module status. Change is added so that a response is sent to CIU module status requests. The response is a standard "everything is OK" response, but includes the CIU module type for use by the host computer.
Changes at October 5, 2005 Release		
1	E	Add notification of time limited license expiry at SimClient Debug Message tab and at Event Log. This applies only to licenses that have been purchased for a specific time period.
Changes at August 26, 2005 Release		
1	E	Add ***Loop Back Mode*** to support testing of operator console systems. Refer to Users Manual for details.
2	E	Add ***CFGAutocreate.exe*** utility to automatically create a usable set of Bailey DCS controller files (file type CFG) from the tag database CSV file that is used by the Previse Bailey DCS OPC Server.
3	E	Add the ability to enable and disable alarms by tag type to assist in test of HMI alarm behavior. Refer to Alarms tab of BaileySimClient. This function permits test of each individual supported alarm type.