



SUMMARY NET CHANGE

Product No.: **PAG400**

DDL Systems is pleased to announce a new version of the ACO PAGER™ Message Alert System. This new version provides several improvements and enhancements based on reports and requirements identified by our customers and support staff. This document presents a summary listing of the cumulative enhancements contained within this release beginning with version 2.5 through version 6.0.

Enclosed are the following materials:

- A summary listing of the enhancements now available
- A listing of any known problems or installation concerns

If you have questions concerning the installation or how to use the new features contained within this version, please contact our *SupportLine* at **(866) 559-0800** and **select option 2** or send e-mail to **support@ddlsystems.com**.

*Please read the **KNOWN PROBLEMS** section of this document for late breaking changes or installation concerns regarding this release.*

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KNOWN PROBLEMS

Version 2.5.00

New TCP/IP Monitor. This new message monitor uses the PING command to verify the connection status of any TCP/IP device on your network. Just enter the host names you want the monitor to check and the results of the PING operation are forwarded to a monitored message queue. Once received at the monitored message queue, any user-defined action can be performed based on the message content, severity, etc. Alternatively, you can run the ACOTCPPING command stand-alone or as a result of receiving a monitored message (i.e. Command to run field in the message action record). This command can be used to check the up or down status of any TCP/IP device connected to your AS/400 - even devices connected to the Internet.

Enhanced QHST Message Monitor. i) Corrected an array index error that occurs when processing a history record with no message text. ii) Added a new function to send a special message containing the job sender information (if this option is selected in the message queue file) just prior to the original message that is being sent to the alternate operator message queue.

ACO ESI Message Interface enhancements. i) Allow user to specify the end-of-message character string for any message sent to the Message Interface display. A new parameter was added to Execution Options to allow the entry of a three (3) character code that is appended to the message transaction. This can be used by the Command/Post automation script to determine the actual end of the message. ii) Append the system name to the AC00068 special job sender message sent to the Message Interface and subsequently to Command/Post.

New Priority Paging Feature. The Pager Name File was enhanced with a new field that defines the job scheduling priority of the pager id. This field is used by the paging engine to determine the job queue scheduling priority when submitting page requests to the ACOPAGER job queue. Pagers with a higher priority are selected first from the job queue and can be used to expedite specific paging requests. The only restriction is that the scheduling priority cannot be higher than the highest scheduling priority allowed for the user submitting the request.

Enhanced Message Action File. The Message Action File "Command to Run" feature was enhanced to allow additional job sender information to be passed to commands/programs run by the Message Monitor. All program parameters are passed as character variables and must match the variable attributes defined in the called command/program. Also, the number of parameters and the order in which they are passed must also match.

Miscellaneous changes. i) Changed Motorola IXO protocol to check for additional acknowledgment characters in the return strings sent from the paging service. ii) Enhanced the paging engine error recovery routine to automatically retry sending the message if an I/O exception error occurs during the session with the paging service. iii) Corrected a problem with processing the shift master records. Program would not select the correct shift record and associated subgroup id if the shift start/stop time crossed a day boundary. iv) Added new function key to panel to work with Configuration Status and Hardware Resources commands on Pager Name Maintenance panel.

Enhanced ACOSTRUP command. i) This command was changed to reset the status of all monitored message queues to a value of "Stopped" when performing normal housekeeping functions during startup operations. ii) This command was enhanced to optionally start or end all ACO message monitors. New parameters were added to control the up or down status of the Job Monitor, RePage Monitor, TCP/IP Monitor, and ACOPAGER subsystem. iii) The ACO Main Menu options one (1) and two (2) on the

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Functions Window were changed to run the ACOSTRUP command. These options will now automatically start and end all message monitors in ACO.

Version 2.5.01

Miscellaneous changes. i) Add ability to perform the install from a save file. With this enhancement, you can now download PTF's and full-cut product releases directly from our web site at <http://www.ddlsystems.com>. ii) Changed the default value for priority paging feature to a value of five (5) if a priority was not entered in the Pager Name File. iii) Changed the default value for priority paging feature to a value of five (5) if a priority was not entered in the Pager Name File.

Version 2.5.02

Miscellaneous changes. i) Replaced CLRMSG and SNDMSG programs with ACOCLRMSG and ACOSNDMSG respectively. ii) Corrected a problem with the validation logic associated with the "paging priority" field in the Pager Name Maintenance program.

Version 3.0.00

Enhanced Message Monitor Command Processor. The Message Action File "Command to Run" feature was enhanced to allow additional job sender information to be passed to commands/programs run by the Message Monitor. All program parameters must match the field attributes defined in the called command/program. Also, the number of parameters and the order in which they are passed must match. The available parameters are extracted directly from the received message and are as follows:

Enhanced Message Action Maintenance Program. i) The ACO Message Action Maintenance program was enhanced to support copying and deleting message action sets defined for a message queue. This allows you to easily create and manage message action sets for multiple message queues. Use F18 and/or F19 to copy/delete message action sets respectively from the Message Action Maintenance list panel. ii) Added new function key (F17) override when performing command syntax checking on panel 2. This allows you to enter parameters on commands and programs that cause an error in the OS/400 command syntax but are acceptable to ACO PAGER™. iii) Added the message description to the Message Action Maintenance folded panel. When you press F16 to view the folded panel you can now see the message text as it is displayed on the DSPMSGD command. iv) Added the ability to send a test message from the list panel.

New Pager Message Text Options. New fields were added to the pager name data base to support a job name, user name, and a date/time stamp prefix options. If these fields are set to blanks on the pager name file record, the Message Monitor prefixes the actual job name, user name and date/time to the pager message from the message received at the monitored message queue. These fields are ignored while processing page requests for numeric pagers.

Enhanced Message Monitor Search Engine. Enhanced the Message Monitors search engine to allow generic job name, user name, and program name entries in the message action records. An asterisk (*) is used in the message action fields to denote generic entries (e.g. ACO*).

New Job Event Monitors. A new Job Event Monitor was added to determine the status of i) any system monitor, batch job, interactive job etc. on the Work with Active Jobs display and to notify you if jobs are consuming excess CPU, jobs with poor response time, jobs with their priority too low, and jobs with a

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certain status or function being performed. ii) any communications configuration device on the Work with Configuration Status display (e.g. lines, control units, device descriptions, and network interfaces) and notifies you when they are set to an incorrect status. iii) basic system performance and disk utilization (i.e. DSPSYSSTS command) and notifies you when the current values exceed your user-defined thresholds. Just enter job events you want the monitor to interrogate and the results are forwarded to a user-defined message queue. Once received at the monitored message queue, any user-defined action can be performed based on the message content, severity, etc. THIS FEATURE IS CURRENTLY BEING EXPANDED TO MONITOR JOB QUEUE'S AND OUTPUT QUEUE'S.

Enhanced Monitor Start/End commands. All monitor start/end commands were changed to use both the job name and user name to determine if the respective monitor is already active (when performing startup functions) or currently inactive (when performing end functions). The user profile name defined in Execution Options is used in conjunction with the job name when starting or ending the monitors. This additional field is used

Miscellaneous changes. i) Changed Motorola IXO protocol to check for additional acknowledgment characters in the return strings sent from the paging service. Added new logic to the Motorola IXO protocol to limit the maximum length of the PIN number sent to the paging service. A total of ten (10) digits can be sent, however, some IXO paging services only allow up to a maximum of eight (8) digits. ii) Corrected a problem with the ACODEL data area. A periodic lock conflict was causing an exception error in the ACOLINK program during initialization. iii) Added new Job Event Monitor options to the ACO Main menus. iv) Corrected a problem occurring on file maintenance programs encountering record lock conflicts when F12 is pressed and multiple revise mode (option 2) selections have been entered on the subfile list panel records. v) Added a user-defined delay value that triggers a communications wait if the ACO NET™ Network Monitor (ACONETMON) cannot complete a connection to the remote system. If this wait time is exceeded an inquiry message is sent to QSYSOPR. vi) Enhanced the TCP/IP file maintenance program (ACR075) to allow prompting on the message queue parameter.

Version 3.1.00

Enhanced Message Monitor. The ACO Message Monitor was enhanced to synchronize inquiry message replies between the forward-to message queue (e.g. DSP01) and the originating message queue (QSYSOPR). Prior to this enhancement, message replies entered directly into the originating message queue were not sent to the forward-to message queue - leaving the inquiry message open in the forward-to queue. This could potentially cause confusion as to whether or not a message had been replied to. To synchronize the queues, the system operators must run the ACOCONSOLE command once on the AS/400 system console after signing on the display.

If you do not run the ACOCONSOLE command on the AS/400 system console and your end users/system operators enter message replies directly in the originating message queue, null reply values are sent to the originating message queue once the replies are entered in the forward-to queue. When the null reply values (from the forward-to queue) are received by the Message Monitor (in the originating queue), they are discarded. This is the default synchronization method used by the ACO PAGER software. The method you choose is dependent on your organizational requirements.

Version 3.2.00

Enhanced performance. Replaced existing logic with system API's to enhance the performance of the Message Monitors and Job Event Monitors.

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New Job Event Monitors. The Job Event Monitor was expanded i) with new monitors that determine the status of job and output queues, ii) with the ability to monitor for multiple status conditions for any event type, iii) to easily Release or Hold the monitoring of any event, iv) with the ability to create periodic performance snapshots of your system, v) and new ease of use features to review current system settings by event type to simplify set up and maintenance. THIS FEATURE IS CURRENTLY BEING EXPANDED TO MONITOR NETWORK FILE STATUS (WRKNETF).

Enhanced Message History. The message history program was enhanced to i) allow a new text compare string selection filter that scans the message history text and loads messages to the panel that match this criteria, ii) to create type 'P' (pager) message history records with the actual date/time stamp when the pager message is sent, iii) and with a new function key (F18) to view the formatted performance snapshot message sent from the Job Event Monitor. You can use the descending sequence option along with a message compare string of DSPSYSSTS to view all performance snapshot messages by time of day.

New Execution Option. A new Execution Option has been added to allow user control over a new option that determines if inquiry messages are removed or retained in the originating message queue after the reply has been entered. ACO PAGER™ is pre-set to remove messages from the monitored queue.

Enhanced Workstation Message Queue Monitor. The workstation message queue monitor was enhanced i) to allow monitoring of any non-workstation message queue (e.g. QSYSOPR) while in *BREAK delivery mode, ii) and to perform the complete set of message action functions that the batch message queue monitor performs (e.g. auto-reply, filter, run commands etc.).

Enhanced ease of use features. i) All maintenance and history panels were enhanced to perform more consistent subfile paging logic. ii) Function keys were added to many maintenance panels to allow additional list window prompting capabilities. iii) Added new function keys to display the current system values (by event type) in order to simplify the set up of job event thresholds. iv) Added the message description to the Work with Message Actions folded panel.

Version 3.3.00

New Electronic Mail Feature. i) The Work with Pager option was enhanced to support a new e-mail pager type (6) and with an additional panel to maintain the required fields for electronic mail support. If your system is configured to use TCP/IP and the Simple Mail Transport Protocol (SMTP), you can use this pager type to send monitored messages to any e-mail address. Previously, the Send Distribution (SNDDST) command was used in the "Command to run" field in the Message Action record to send mail messages. This support has now been internalized into the base product via pager type six (6). ii) All Message Monitors have been modified to send e-mail messages based on this new pager type. iii) The Work with Message History panel was enhanced to display a new history record type 'M' (e-mail). The 'M' record is created as a result of the Message Monitor sending a monitored message to an Electronic Mail user. This new history record is similar to the paging validation record type 'P'. However, the 'M' record contains information specific to the Recipient User/Address information that is used to deliver the e-mail message. With this enhancement, the electronic mail feature is no longer dependent on a specific Message Action record and your Group Call Lists can now perform normal paging as well as sending e-mail. THIS FEATURE IS BEING EXPANDED TO ALLOW DIRECT ENTRY OF INTERNET ADDRESSES.

New Execution Options. New Execution Options were added to allow user control over the default delay values used by the Job Event Monitor, RePage Monitor, and TCP/IP Monitor. The new command delay default value for the STRJOBMON, STRREPAGE, and STRTCPMON commands is set to *DFT.

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Enhanced ease of use features. i) A new status field was added to the Work with Pagers panel to allow the “holding” or “releasing” of specific pagers. This will allow you to take specific pagers “offline” if necessary. ii) The ACOPAGE command pager name window prompt was expanded to display the new status field. End-users can now easily determine which pagers have been taken “offline”. iv) The ACO PAGER™ Installation Command was enhanced to use the LODRUN command. This support simplifies the installation or re-installation of the software product on your AS/400 system. This program was also enhanced to support installing the product directly from CD-ROM. Finally, the installation program was modified to automatically add a System Distribution Directory entry for the ACO user profile. This is used by the Message Monitors to send Electronic Mail to users that have been configured to use this support.

Version 3.4.00

New Threshold Message Monitor Feature. The Work with Message Actions panel was enhanced to allow the entry of a message threshold. These new threshold parameters can cause the Message Monitor to perform a different set of user-defined actions based on the duration (in minutes) and frequency of a message received in a monitored message queue. For more information regarding this new feature, refer to the Work with Message Actions help text or the *Guide to Operations* manual.

New TCP/IP Monitor Run Time Control Options. New fields were added to the Work with TCP/IP Host Names panel that allow user control over the day-of-week and run-time that the host name is interrogated (e.g. PING'ed). The TCP/IP Monitor will select the host name records based on the values set for these new run-time parameters. Valid days are Monday through Sunday. **The installation program sets all user-defined host name records to run 24 hours a day Monday - Sunday.**

Enhanced ease of use features. The ACO PAGER™ Installation Command was enhanced to create an installation log. If you experience a problem during the installation you can access the log by entering the DSPMSG MSGQ(ACOLOG) command. This new support enhances installation or re-installation of the software product on your AS/400 system by reporting the completion status of each step.

Version 3.4.01

Enhanced ease of use features. i) The ACO PAGER™ Installation Command was enhanced to create a permanent installation log (ACOLODRUN). Once the software is successfully installed, you can check the status of the last installation (at any time) by entering the DSPMSG MSGQ(ACOLODRUN) command. This new support enhances installation or re-installation of the software product on your AS/400 system by reporting the completion status of each step. This information is also accessible from the ACO Main Menu Setup Window. ii) Added a new program to extract the resource name from the QESLINE or ACOPAGER line descriptions during the software installation/upgrade procedure. The resource name is extracted from the QESLINE (IBM pre-defined) description during new installations only. During a software upgrade, the resource name in the existing ACOPAGER line description is used. This resource name can be changed at any time by using the Work with Execution Options program.

Version 3.5.00

New Dependent Messaging Feature. The Work with Message Actions panel was enhanced to allow the entry of dependent message information. These new dependent message parameters can cause the Message Monitor to perform a different set of user-defined actions based on the receipt of the dependent message in the monitored message queue. In other words, the actions taken by the Message Monitor for a received message become dependent on whether or not another message has been received (within

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the time frame specified) in the monitored message queue. For more information regarding this new feature, refer to the Work with Message Actions help text or the *Guide to Operations* manual.

Expanded Command to Run Parameter. The Work with Message Actions “Command to run” field was expanded to allow up to five hundred and twelve (512) characters to be entered.

New Execution Options. i) Added a new option to sound an alarm on the workstation (running the ACOCONSOLE command) as new messages arrive on the system operator message queue in *BREAK delivery. ii) Added a new message queue severity filter (used by the ACOCONSOLE command) that prevents messages with a lower severity from interrupting the system operator console. iii) Added a new modem initialization string parameter to allow user-defined overrides to the modems set up . iv) Added a new parameter to specify the line resource name used by the ACO PAGER line description.

Version 3.5.01

Miscellaneous Corrections. i) Added a new edit in Work with Execution Options to prevent the user from entering the AS/400 System History (QSYS/QHST) message queue on the system operator message queue parameter. ii) Corrected a problem with displaying the pager id prompt window (when F4 is pressed) on the Work with Group Call List display. iii) Corrected a problem with the delayed paging feature that was causing the paging engine to send the AC00030 (Communications error encountered) inquiry message to QSYSOPR. This message was being sent even though the message was correctly delivered to the paging service. iv) Enhanced the UIM help text on the Work with Message Actions panels.

Version 3.5.02

Message Queue Monitor Correction. Corrected an array index error that occurs when processing a message (received in the monitored message queue) that has a blank in the first position of the message text or has no message text at all.

Version 3.5.03

Expanded Message History Information. Additional fields were added to the Message History File (ACP0300) to retain message reply origination information. These new fields contain all of the job sender detail regarding the reply. Previously only the reply value, reply date, and reply time were retained for inquiry messages.

Paging Engine Correction. Corrected a problem that was reported with the ACOPAGE command causing excessive wait times after sending a page. The problem is only encountered on OS/400 V4R3M0 and occurs when ACO PAGER™ varies off the line description and downstream objects. The workaround is to individually vary off each communication object. This problem has been reported to IBM.

Command Execution Correction. Corrected a problem with sending a system message to an Internet e-mail address. The @ sign was being interpreted as a reserved ACO PAGER™ substitution variable. As a result, the command string encounters a syntax error and was not being sent. The error occurs if you are using an Internet e-mail address (e.g. info@ddlsystems.com) within the Send Distribution (SNDDST) command to send system generated messages to your MIME compatible e-mail client.

Version 3.5.06

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Job Event Monitor Correction. Corrected a problem with the Job Event Monitor when an event record crossed a day boundary. This problem only occurs on systems running version 3.5.03 of ACO PAGER™. In addition, the performance monitor was modified to reset the system statistics each time a performance snapshot is taken. This is similar to pressing F10 to reset the statistics when viewing the performance information interactively (via WRKSYSSTS). This will provide for a more accurate performance snapshot.

Version 4.0.00

Multiple Communications Interface Support. A new option was added to enter specific information about the communication lines available on your AS/400. This option maintains a line description file which is used to define the physical line adapters, resource id's, and other communications attributes that your AS/400 system will use to communicate with your paging service(s). In a typical installation, one line description can sufficiently handle the normal volume of pager messages. However, for high volume installations and/or systems configured to perform centralized (target) paging functions; ACO PAGER(TM) can support multiple concurrent connections through the use of additional AS/400 line adapters.

Expanded Message Monitor and Work with Message Actions. The Message Monitors were enhanced with additional error recovery logic. If the system encounters severe errors while sending a message to your paging service, an alternative action can now be performed to send the original message to your pager via an Internet e-mail connection.

Expanded Work with Pagers Information. New fields were added to the Work with Pagers panel:

- New Internet e-mail address. The users Internet e-mail address can be entered to send e-mail messages to this user or to perform other error recovery functions.
- A password was added to support TAP paging services that require a password prior to message entry.
- Expanded the personal identification number field to a maximum of eleven (11) positions to support SMS International paging protocol requirements.

Expanded Work with Message Queue Features. New fields were added to the Work with Message Queue panel:

- Added a new field to user-define the creation of message history.
- Added a new field to completely block all messages from being forwarded to the system operator message queue. The default system operator message queue is ACO in library QUSRSYS.

New Paging Agent. A new paging agent was added to support an Internet and/or client server based paging interface from your applications; even e-business applications. Future releases will use this interface to integrate Operations Navigator "plug-ins" with ACO PAGER™.

New Work with Pager Queue Option. Work with Pager Queues option allows you to view the page requests that are currently being processed by the system. Paging jobs are listed (by user) in priority sequence. You can view the paging requests submitted by other users by entering a valid user profile name on this command. All paging requests submitted by the Message Queue and Job Event Monitors use the ACO user profile. In addition to viewing active and queued paging jobs, the program allows the user to perform various job control functions (e.g. holding, releasing, and ending jobs) as well as, viewing job logs and communications trace reports.

Work with Execution Options. New options were added to support the following features:

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- Added a new field to force the communication objects (e.g. line, control unit, and device descriptions) to vary off subsequent to a message being sent.
- Added a new option to allow paging jobs to be logged to the pager queue.
- Added a new option to control if the ACOWAKEUP trigger message is sent by the Job Event Monitor.

Job Monitor/TCP Monitor Corrections. A change was made to the Job Event and TCP/IP Monitors to correct a problem with the event time comparison logic. Also, a new field was added to the system status record to force the Job Event Monitor to reset the performance statistics after a performance snapshot is taken. This will provide more accurate performance information during each processing cycle.

RePage Monitor Enhancement. Enter the maximum number of pager/e-mail message retries that will be performed by the RePage Monitor when notifying a group call list. For inquiry messages, if this field is left blank, the RePage Monitor will notify each individual in the group (based on priority) indefinitely until the inquiry message is answered. A value entered into this field limits the number of pager/e-mail messages sent to the group without regard to the status of the inquiry message.

Miscellaneous changes.

- Modified the ACOAPYPTF command to allow program updates sent to your AS/400's integrated file system.
- Enhanced the product installation procedure to convert additional product files.
- Added new commands to view the software installation log (ACODSPLOG) and to clear message history (ACOCLRHST).
- New changes to support additional Operations Navigator® and Management Central® features.
- Added new parameter(s) to allow the controlled end of the ACOPAGER subsystem.
- A new option was added to display product license information.
- Added date and time selection parameters to the Work with Message History panel when searching by message id.
- Added a new field to retain the current number of pager messages sent for each message received on the system. This is used by the RePage Monitor to limit the number of pager message sent to a group call list for any unanswered messages in a monitored message queue.
- Added new options to the ACO Main Menu.
- Redesigned the AS/400 menus and changed the ACO user profile to run these menus at sign-on.
- Added new status codes to Job Event Monitor selection window.

Version 4.0.01

Job Event Monitor Corrections. Corrected a problem with the Job Event Monitor to correctly identify the status of jobs (with the same job name) running in more than one subsystem.

Version 4.0.02

Job Event Monitor Corrections. Corrected a problem with the Job Event Monitor which was incorrectly performing a status check on the job event even though the event record did not have any normal run status codes defined.

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Version 4.5.00

New Paging Feature. Added a new feature to allow group paging based on the user's department name in the AS/400 System Distribution Directory. The special value *USRDEPT (in Work with Message Actions) is used to determine the group id to be notified. When this parameter value is specified, the system extracts the group to be notified based on the user's department name (in the system distribution directory entry). The user name that is used to query the system directory is based on the user name that originated the message (in the monitored message queue). If no directory entry is found for this user, no notification message is sent. To use this parameter value you must have at least one group call list id that matches an existing department name in the system distribution directory.

New Two-Way Messaging Support. If your system is properly configured, you can send and reply to system/application events (monitored by ACO PAGER™) from most 2-way paging devices, properly equipped digital cellular phones, and e-mail clients like Outlook or Groupwise). To use this feature, your AS/400 must be able to send and receive Internet e-mail. In addition, your paging device must support 2-way messaging and be properly configured.

Miscellaneous changes. i) Corrected a problem with the system performance snapshot feature. The proper start/stop time was not being calculated correctly. ii) Corrected a program parameter mismatch when running the ACOCLRST command. iii) Removed the message data field from the Work with Message History panel. This was occasionally causing the program to fail (with a permanent I/O error) when a non-displayable character was contained within a message. iv) Corrected a problem with the Internet Paging Engine. v) Corrected a problem with locking the ACOHST data area. vi) Modified the Event Router (ACOROUTER) to create message history for non-inquiry messages when an auto-reply action record is selected by the Message Monitor.

Version 4.5.01

Expanded Two-Way Messaging Support. i) The two-way Message Monitor was enhanced to send reply acknowledgment messages as a result of processing replies (or commands) entered on your two-way messaging device (e.g. Nextel, Pagewriter 2000, or e-mail client). ii) The two-way Message Monitor was modified to improve performance associated with its reply/command processing engine. iii) Added support for running commands entered from your two-way device or e-mail client.

Miscellaneous changes. i) Eliminated the requirement for the QSECOFR user profile during installation and configuration procedures. Now, the user performing the operation must have *ALLOBJ authority. ii) Performance improvements. Additional programs have been rewritten in ILE. iii) Added a new parameter to the ACOSTRUP command to avoid reorganizing the transaction based files during startup of the Message/Event Monitors. Also, a new parameter was added to the ACOCLRST command to perform file reorganization functions. iv) Added the ability to hold and release message action records. Inactive message action records will not be selected or processed by the Message Monitor(s). v) Removed the "duplicate pager id" edit from Work with Group Call List option. The same pager id can now be entered in the list to perform repetitive notification or escalation options.

Version 4.5.02

New Group Call List Schedule. The group paging feature has been expanded to allow entry of a group call list schedule. Use this new feature to enter a schedule of "on-duty" group call lists based on the calendar date. This option is used in conjunction with the notification parameters (in Work with Message

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Actions). If a message action record contains the special value *SCHEDULE (in pager/group id field), the Message Monitor uses the current system date to extract the appropriate "on-duty" group call list id. If *SCHEDULE is specified, and no group call list schedule has been defined, the system uses the default group id specified in Work with Execution Options. Group schedules work in conjunction with your group work shifts (if defined in the Work with Group Call List option). If the group name (identified in the schedule) has a work shift defined, the Message Monitor will notify the appropriate "on-duty" group based on the current system time.

Miscellaneous changes. i) Added error recovery logic to Work with Message History (ACOWRKMSG) option to avoid exception message if recursively called. ii) Added new function key to globally change/replicate pager or group id notification parameters. iii) Added a new function key to the Work with Message History (ACOWRKMSG) and Work with Pagers options (ACOWRKPAGF) to view the pager queue (ACOWRKPAGQ). iv) Corrected a problem with the group call list maximum retry logic. The program would not submit eligible messages if a maximum value was not specified. Corrected a problem with the group call list shift master sub-group logic. If a previous sub-group had been paged and the current RePage cycle does not select a valid sub-group, then send the page to the primary group id.

Version 4.5.03

Miscellaneous changes. i) Added error recovery logic to Work with Pager Queue (ACOWRKPAGQ) option to avoid exception message if recursively called. ii) Added additional help text for group call list schedule display panels. iii) Added logic to convert the group call list schedule file (ACP0830) during software installation. iv) Added function keys to Work with Message History and Work with Pagers list panels to link to the Work with Pager Queue option. v) Corrected a problem with the Work with Group Call List Schedule panel. Prior to this change, if the default group id was overridden, the program would not update the default group id in Work with Execution Options.

Version 4.5.04

Miscellaneous changes. i) Corrected a problem with sending 2-way messages when the sending user has not been granted authority to work on behalf of the ACO2WAY user profile. ii) Removed the CHGJOB command from the Job Event Monitor program exception error logic. This was causing the event monitors to create detailed job logs when the system objects being interrogated were temporarily locked due to backup or other system functions.

Version 4.5.05

Enhanced Network Monitor. The network monitor's centralized paging feature was enhanced to attempt communications with a secondary target machine(s) if the connection to the primary system fails. Up to two (2) secondary target system names can be specified in addition to the primary target system.

Enhanced Job Event Monitor. A new parameter "Report only during run time" was added to the Job Event maintenance program. Enter a 'Y' into this parameter to instruct the Job Event Monitor to report event status only during the run time specified. Leave the default value of 'N' if you want the Job Event Monitor to report event status regardless of the normal run time specified. For example, if you have a communications object that has a normal run time of 7:30 a.m. - 8:30 a.m. and a normal run status of ACTIVE (or CONNECT PENDING), the following events would be reported depending on the value of this parameter:

If this parameter value is set to 'N' (default), during the run time specified (7:30 a.m. - 8:30 a.m.) if the object's status does not equal ACTIVE (or CONNECT PENDING), an event message is sent to the

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named message queue. Outside of the run time specified, an event message is sent only if the object is currently in an ACTIVE (or CONNECT PENDING) status. If the object is not currently in one of the status values specified and the current system time is outside the run time range, no event message is sent.

Miscellaneous changes. i) Corrected a problem associated with specifying a sequence number on the restore object command (RSTOBJ) when running the LODRUN command from CD-ROM. This was related only to systems running OS/400 V4R5. ii) Corrected a problem with the ACOPAGCLR command. This command was failing if the ACOPAGER library was not in the job's library list. iii) Added a signoff option (90) to the ACO Main Menu.

Version 4.5.06

Enhanced Job Event Monitor. Modified the output queue and job queue monitors to use greater than or equal to threshold logic.

Miscellaneous changes. Added new communication compare strings to the paging engine (TAP-IXO protocol only) to accommodate additional paging service requirements.

Version 4.5.07

Enhanced Job Event Monitor. A new library object type was added to the Job Event Monitor that allows you to monitor the size of libraries and files. This event monitor will trigger event messages based on the objects size, current (and deleted) record counts (if specified).

Miscellaneous changes. Corrected a spelling error on the Work with License Program menu.

Version 4.6.00

Enhanced Job Event Monitor. A new spool file event type was added to the Job Event Monitor that allows you to monitor detailed spool file information. This event monitor will trigger event messages if a particular spool file contains a user-defined compare string or if the spool files have expired based on a user-defined parameter. Optionally, expired spool files can be deleted from the output queue or moved to another output queue.

Version 4.6.01

Miscellaneous Changes. i) All maintenance panels were modified to allow cancellation of the programs via the F12 function key. ii) Corrected a problem with the spool file event monitor compare string logic. iii) Added a new option to the Work with Pagers panel to prefix the pager message with the message id received on the monitored message queue.

Version 4.6.02

Enhanced Two-Way Reply/Command Engine. The two-way reply/command engine was enhanced to send reply/command acknowledgment messages to the two-way user that entered the remote reply/command. Previously, the system would send confirmation messages only to the user named on the AC00159/AC00160 message action record. Due to message escalation functions, this may not have been the user that entered the reply/command from the remote two-way device.

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Version 4.6.03

Enhanced Two-Way Reply/Command Engine. The Work with Pagers maintenance program and the two-way reply/command engine were enhanced to ensure that the reply e-mail address is in lower case. Periodically, the paging service (e.g. Nextel) would send the reply e-mail address back to the iSeries 400 with a mixed case (e.g. 2195551212@Messaging.Nextel.Com) (regardless of how the e-mail address was specified on the Work with Pagers panel). The reply engine uses the reply e-mail address to retrieve the appropriate pager name record to determine various messaging options for reply acknowledgment processing. Prior to this enhancement, if the reply e-mail address was returned with a mixed case, a match would not occur and the reply acknowledgment (if specified) would not be sent. With this enhancement, any mixed case addresses are translated prior to performing a match against the Work with Pagers file.

Miscellaneous Changes. i) The Work with Execution Options maintenance panel was modified to allow blanks to be specified in the "End of message delimiter" field. Previously, the program always entered a default value of @#@. ii) The Job Event Monitor was modified to allow generic (*ANY) user names to be entered for batch job events. iii) Corrected a problem in Work with Message Actions maintenance to allow entry of *USER/*DFT in the notifications options.

Version 4.7.00

Copy Enterprise System Messages. The ACO NETWORK™ Monitor was expanded to copy Enterprise System messages to a TARGET machine. These messages are sent to a Network Transaction file (ACP0260) on the TARGET machine for processing. This feature can be used to assist with your disaster recovery requirements or to provide centralized messaging capabilities. To use this feature, you need to configure and start the ACO Network Monitor (ACONETWORK). Refer to the "Configure Network Monitor" (ACOCFGNET) command for more information. In addition, use the "Read local/remote file" parameter on the Start Command/Post command to instruct the ACO Enterprise Message Server (ACO_MSG) to read the Network Transaction File (ACP0260).

New Integrated File System (IFS) Monitor. The Job Event Monitor was expanded to allow monitoring of IFS directory objects. This monitor will trigger event messages if a particular IFS object has expired based on a user-defined "maximum days to retain" parameter. Optionally, expired objects can be deleted, moved, or copied to another IFS directory.

New ACO ESI™ Enterprise Server Integration. New Enterprise Servers were developed and integrated into ACO PAGER™ that significantly improve performance associated with sending/receiving messages to/from an Enterprise System (e.g. BMC Patrol, Command/Post, or MAX/E). These server programs establish a socket connection directly to your enterprise automation host. Refer to the ACO ESI™ v2.0 Net Change Letter for more information.

Miscellaneous Changes. i) The ACOCLRHST command now delays 120 seconds prior to starting the file reorganization process. This is necessary to provide adequate time to terminate the ACOPAGER subsystem prior to running the file reorganization function. ii) Corrected a problem with sending alpha pager messages while the AS/400 system is in a restricted state. iii) Corrected a problem with sending the Work with Execution Options change notification message to a workstation. iv) Modified the ACOCONSOLE command to execute the DSPMSG command when new messages arrive on the alternate system operator message queue (ACO). Prior to this enhancement new messages would not cause the console to break. v) Corrected a cosmetic problem with a few ACO PAGER™ commands that contain parameters. vi) Corrected a problem with performing an unconditional delete operation in the

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ACO NETWORK™ Monitor. This was causing the ACONETWORK job message queue to fill and the system would eventually terminate the ACONETWORK job. vii) Corrected a file locking problem with the QHST Monitor. This was causing the IBM backup jobs (QEZBKTM*) to fail to completely backup the ACOPAGER library.

Version 4.7.01

Miscellaneous Changes. The IFS Event Monitor was modified to convert object names (read from an IFS directory) to upper case prior to performing object comparison logic. This eliminates the necessity of having to enter the object name in the matching case when setting up the IFS event record.

Enhanced Message Monitor. The Message Monitor (ACOPAGMON) was enhanced to process additional generic message id search capabilities. Now, if you enter a single message action record containing a generic message id like PAY0000 (in Work with Message Actions), the ACO Message Monitor will perform the same action for all PAY* messages received in the monitored message queue.

Version 4.7.02

New Unattended Operations Monitor. Like a job scheduler the ACO Unattended Operations monitor executes your commands and application programs based on your user-defined entries. However, unlike IBM's job scheduler, this scheduling engine can perform even while the system is in a restricted state. Use this monitor during restricted or non-restricted state processing to perform "lights-out" operations.

Enhanced Event Monitors. A new event monitor has been developed to determine the status of distribution queues (i. e. WRKDSTQ command). In addition, the job event monitors have been enhanced to allow the generic value of (*ANY) in the job and user name fields. With this change, you can now setup one event record that will monitor the performance of all interactive or batch jobs on the system. This feature will allow you to easily identify problem (or run-away) jobs on your system.

Miscellaneous Changes. i) Converted programs to ILE. ii) Revised help panel for ACO Network Monitor command (ACOCFGNET).

Version 4.7.03

Enhanced Job Event Monitor. The job event monitor was enhanced to allow further classification of a job event. A new job subtype field was added to the Work with Job Events panel to enable interrogation of jobs of a specific subtype (e.g. Batch interactive (BCI), Program start request (EVK), Pre-start job (PJ) etc).

Miscellaneous Changes. Added a new edit to the Work with Pagers panel to prevent the deletion of pager id's if they are currently defined within an active message action record.

Version 4.7.04

Enhanced Enterprise Server Options. The ACO Enterprise Servers were enhanced to allow fully qualified domain names (e.g. SALES.ABC.COM). Prior to this change, the servers could only connect with an Enterprise System that was on the same domain as the iSeries 400. The Work with Execution

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Options panel was modified to allow entry of the specific domain names for both server jobs (e.g. ACO_MSG and ACO_CTL).

Enhanced Work with Pager Queues. The Work with Pager Queues option was enhanced to allow all paging requests to be viewed by entering *ALL in the "submitted by" user field. In addition, function key F13 (Repeat) replicates a selected option (e.g. 5=Display) into each record on the list panel. This is useful for displaying each detail paging job or deleting all entries on the list panel.

Version 4.7.05

Enhanced Execution Options. A new parameter was added to Work with Execution Options to instruct the ACO Enterprise Message Server (ACO_MSG) to automatically initiate message override mode if the message server program is not running, fails, or is cancelled. In override mode, the ACO Message Monitor (ACOPAGMON) forwards all message events (originally intended for the enterprise system) to the alternate operator message queue (ACO). Once the ACO Enterprise Message Server is restarted, override mode is automatically cancelled.

Enhanced Work with Message Actions. The Work with Message Actions option was enhanced to support day-of-week and time-of-day parameters. These new parameters determine when a particular message action record is effective. A new field was added to the Work with Message Actions panel to allow you to specify a comment for a message action record. This can be used to document who entered the message action record and for what reason.

Enhanced Job Event Monitor. The Job Event Monitor was changed to use greater than or equal to logic when performing comparisons against the threshold values. Prior to this change the Job Event Monitor would only trigger an event message when a threshold value was exceeded. In addition, a problem was corrected with the Work with Job Event Monitor maintenance program (ACR085). A large number of job event records (over 1,000) would cause the subfile to fill while paging through the detail records (via the page down key).

Miscellaneous Enhancements. i) The ACOCLRST command was modified to wait until the ACOPAGER subsystem is ended before the file reorganization logic is performed and the monitors are restarted. ii) The software installation command (ACOINSTALL) was enhanced to automatically convert additional files and data areas. iii) Corrected a problem with ending the ACOPAGER subsystem (via the ACOSTRUP command) when called from the point-and-shoot menu (ACOMENU).

Version 4.7.06

Enhanced Job Event Monitor. The Job Event Monitor was expanded to 1) allow up to twenty status values to be defined for a single job event and 2) to allow the entry (and monitoring) of generic job and user names.

Miscellaneous Enhancements. i) The software installation command (ACOINSTALL) was enhanced to convert the ACOLBL data area. ii) Corrected a problem with the Work with Message Actions panel when entering a new action record via option 1 on the prompt line. iii) Changed the TCP3206 message description in the ACOTCPF message file to use a 10 position host name.

Version 4.7.07

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Miscellaneous Corrections. i) Corrected a parameter mismatch that was preventing the distribution queue event monitor from running. ii) Corrected a problem with the ACO Message Router (ACOROUTER) user-defined day-of-week/run-time logic. iii) Corrected a problem with the point-and-shoot menu (ACOMENU) when running the ACOSTRUP command.

Version 4.7.08

Job Event Monitor Corrections. The Job Event Monitor was modified to eliminate the active job test when processing generic (*ANY) job events. Prior to this change the event monitor would send an event message (AC00117) if no jobs (of this type/subtype combination) were found running in the system. This event message was falsely indicating a problem due to the generic nature of the job event. However, the AC00117 event message is still sent for all non-generic jobs that are not found running (but should be) based on the run day/time parameters.

Version 4.7.09

Enhanced Unattended Operations Monitor. The Unattended Operations Monitor (ACOOPSMON) was enhanced with a new user-defined option that instructs the monitor to periodically refresh the list of scheduled jobs from the iSeries 400 (or AS/400) internal job scheduler. Prior to this change the schedule was refreshed at startup and on a change of day. Now, changes to the iSeries 400 (or AS/400) internal job schedule entries are effective without stopping and restarting the monitor. In addition, a new user-defined parameter was added to temporarily disable scheduling functions while the monitor remains active.

Message Monitor Correction. The Message Monitor (ACOPAGMON) was enhanced with additional error recovery logic to correct a problem with releasing an implicit lock on the monitored message queue. Occasionally, the monitor would not release the lock if another system program/function temporarily locked the queue subsequent to the implicit lock generated by the Message Monitor (ACOPAGMON). As a result, the monitor would retain multiple locks on the message queue (for the same thread) until it was stopped and restarted.

New Data Propagator Feature. A new data propagator feature was added to support synchronization of the ACO PAGER™ database across a network of iSeries 400 (or AS/400) systems. Currently, this feature performs a mass replace of the file contents on each remote host. However, this feature will be expanded in the future to perform “net change” data propagation functions.

Enhanced Job Event Monitor. The Integrated File System (IFS) event monitor was enhanced to allow scanning of IFS files for user-defined compare strings. The IFS monitor will trigger event messages if a particular file contains (or does not contain) a user-defined compare string based on the relational operator (*EQ, *NE) specified. Optionally, expired files can be deleted, copied, or moved to another directory. The spool file event monitor was also enhanced to allow entry of a relational operator (*EQ, *NE) to test for compare string matches (or non-matches) on the spool file data.

Miscellaneous Corrections and Bug Fixes. i) Various help panel corrections. ii) Corrected a problem with the installation program to properly convert the run day-of-week parameters in the Work with TCP/IP Host Name file. In addition, the Work with TCP/IP Host Name maintenance option was enhanced to properly set default day-of-week values (to 'Y') if blanks are entered (for these parameters) on the entry panel.

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Version 4.7.10

Enhanced Job Event Monitor. The job event monitor was enhanced to support the day-of-week and run-time logic recently added to the Work with Message Actions record(s). Specifically, this affects the job event monitor function that sends a notification message if a particular message is not received by a specific time-of-day.

Version 4.7.11

Enhanced Message Monitor. i) The Work with Message Actions panel was enhanced with a new field to support a message “copy” function. With this enhancement, any message can be sent (copied) to the ACO Enterprise Message Server (ACO_MSG) regardless of the specific message action code entered on the Work with Message Actions record. ii) New fields were added to the Work with Message Actions panel to support “delayed” automatic replies. Delayed reply jobs are added to the iSeries 400’s (or AS/400’s) internal job scheduler; similar to delayed paging requests.

Enhanced Job Event Monitor. The job event monitor was enhanced to monitor for a “maximum number of duplicate jobs”. The job event monitor will send an event message if the number of “duplicate” jobs (based on the specific or generic job/user name) exceeds (or falls below) the value specified on the Work with Job Event record. For example, the Simple Mail Transfer Protocol (SMTP) batch jobs can be monitored by creating an event record with the QTSMTMP* generic job name and QTCP user id. If a threshold value of 4 is specified (in the event record) the monitor will trigger an event message when the number of system jobs does not equal the threshold value (either above or below).

Miscellaneous Corrections and Bug Fixes. i) Added a new parameter to the Work with Execution Options panel to specify the job message queue full action (normally *WRAP) for the ACO monitor jobs. The value entered in this field changes the corresponding value in the ACO job description (ACOPAGMON). This job description is used to control all startup and run-time activities for the ACO monitor jobs. ii) Corrected a problem with override scoping (on the STRTCPFTP command) for the data propagator function. iii) Various help panel additions and corrections.

Version 4.7.12

Miscellaneous Corrections and Bug Fixes. Corrected a problem with the “maximum jobs in system” event threshold decimal precision. All 9’s entered in this field would cause the event monitor to loop.

Version 4.7.14

Miscellaneous Corrections and Bug Fixes. The pager/group id parameter on the ACOPAGE command was changed to support “all” numeric pager/group id’s.

Version 4.7.15

New Leased Line Paging Support. The ACO PAGER™ paging engine was enhanced to support leased line (*NONSWTPP) connections to your paging service.

Version 4.7.16

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Enhanced Job Event Monitor. The spool file event monitor was expanded to monitor for total page count and spool file size.

Version 4.7.17

Miscellaneous bug fix. Corrected a problem with the QHST Monitor. The monitor program now properly rolls-over to the newly created system history file when the system time or date is changed.

Version 4.7.18

Miscellaneous bug fix. The IFS and library object monitors now report missing objects within the IFS directory or library.

Version 4.7.19

Enhanced ACO RePage Monitor. The "Copy to message server" parameter (in Work with Message Actions) was enhanced with additional options to instruct the ACO RePage Monitor (ACOREPAGE) to perform message escalation functions to the ACO Message Server (ACO_MSG). Specifying a value of 2 (or higher) in conjunction with the "minutes to delay" notification parameter instructs the ACO RePage Monitor (ACOREPAGE) to send (or resend) the message event to the Message Server (ACO_MSG) once the "minutes to delay" notification interval has been reached. All message escalation functions are only performed for unanswered inquiry messages processed by the ACO RePage Monitor. Subsequent event escalation is performed based on the ACO RePage Monitor delay interval (specified in Work with Execution Options). To use this feature you must set the "Copy messages to enterprise message server" to 'Y' (also specified in Work with Execution Options).

Version 5.0.00

ACO PAGER™ for WebSphere®. The ACO PAGER™ Message Alert System software has been web-enabled to allow access to all maintenance and operational functions via a web browser. The web client can be used over the Internet (or Intranet) to monitor and control all ACO PAGER™ software features. iSeries 400 (or AS/400) sign-on level security is required to gain access to all product functions. Based on the industry standard Model View Controller (JSP/Servlet/Bean) architecture, the ACO web client is designed for WebSphere®, but can run on other web application servers.

Expanded Job Event Monitor. The Job Event Monitor was expanded to i) monitor individual jobs on a job queue and optionally perform move, delete, and/or change run-time attributes of the queued job(s). ii) Job exclusions can now be added against a particular event in order to filter specific (or generic) jobs from being processed by the job event monitor. iii) Added new fields and capabilities in the spool file event monitor to set thresholds for total number of pages and spool file size. iv) Modified the IFS event monitor to report IFS object existence/non-existence messages.

Unattended Operations Monitor. i) A new job list window was added to the Unattended Operations Monitor panel to allow user access to the list of scheduled jobs. ii) Added new options to control if jobs are to be run only during restricted (or non-restricted) state.

Expanded Message Monitor. The Message Monitor was expanded to i) define and run action scripts. Action scripts allow you to predefine a sequence of user-defined commands to be run by the Message Monitor. Action scripts can be used to perform various automation and problem handling activities. ii)

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The "copy to message server" feature was enhanced with new options to perform various message escalation activities to the enterprise system. iii) Corrected a problem with the job sender information message (AC00068). This job sender message was modified to remove pager/group id information. This was causing the ACO RePage function to resend pager messages for these job information records when sent to the message server (ACO_MSG).

Miscellaneous Enhancements and Bug Fixes. i) A new field was added to the ACO Network Configuration command (ACOCFGNET) to allow selection of the communication type of *SNA or *IP. ii) The ACO PAGER™ notification engine was modified to scan for additional string variables in the paging service dialog. iii) Changed default line speed to 9600 bps for leased line configuration. iv) Changed the software installation program (ACOINSTALL) to convert new files added in version 5.0. v) Expand password field to allow up to a maximum of twenty (20) characters. vi) Corrected a problem with selecting the active history file when the system assigns a new file prior to reaching the record threshold value specified in the QHSTLOGSIZ system parameter. vii) Expanded Work with Pagers password field to allow up to a maximum of twenty (20) characters. viii) Expanded allowable communication line speeds in Work with Pagers. ix) New commands were added to clear all SMTP e-mail on the system and to manually run message action scripts.

Version 5.0.01

Expanded Message History. The ACO PAGER™ paging engine was enhanced to create message history for failed e-mail messages and network paging requests on SOURCE machines.

Version 5.0.02

Expanded Paging Options. The ACO PAGER™ paging engine was enhanced to allow impromptu messages to be prefixed with the originating system name. This is especially useful for tracking network paging requests on machines configured for centralized (SOURCE/TARGET) paging.

Version 5.0.03

Miscellaneous Bug Fixes. The ACO PAGER™ two-way reply engine was enhanced to work with additional two-way messaging services. Specifically, new keywords were added in order to scan (and parse) the reply message based on the unique messaging service requirements.

Version 5.0.04

Enhanced Paging Engine. The ACO PAGER™ paging engine was enhanced to perform automatic error recovery functions when the modem is not powered on or the resource name cannot be varied on.

Version 5.0.05

Enhanced Paging Engine. The ACO PAGER™ paging engine was enhanced to produce communications trace reports in addition to the existing ICF trace logs.

Version 5.0.06

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PRODUCT ENHANCEMENTS

Miscellaneous Bug Fixes. A correction was made to the ACO PAGER™ two-way reply engine in order properly send reply/command acknowledgment messages to Nextel two-way capable devices.

Version 5.0.07

Enhanced Job Event Monitor. i) A new 'time duration' parameter was added to the message action record which is used by the Job Time paging function to determine the starting date/time to begin searching the message history for the message id being monitored. Prior to this enhancement, the job time paging function would always begin its search at one (1) second after midnight. With this enhancement, the search can now effectively cross a day boundary (e.g. the job being monitored ends at 23:59 and the action record time is set to 1:00 a.m.). ii) The job event monitor will now test for the active status (AC00117) of a job if either a non-generic job name or user name was specified on the Work with Job Events record. iii) Corrected a problem performing message escalation (RePage Monitor) functions when a generic (*ANY) message action record was selected when originally processed by the Message Monitor.

Miscellaneous Bug Fixes. i) Additional options were added to the ACO PAGER™ point-and-shoot menu (ACOMENU). ii) The ACO message router (ACOROUTER) was modified to avoid overriding the pager message text with a (non-blank) alternate message id when the message is sent (or copied) to the message server (ACO_MSG). iii) The software installation program was enhanced to create all internal product files with an initial file size of *NOMAX.

Version 5.0.08

Enhanced Job Event Monitor. The performance event monitor was enhanced to interrogate the current and maximum unprotected storage used system values.

Version 5.0.09

ACO System History (QHST) Monitor Bug Fix. A correction was made to the ACO System History (QHST) Monitor. When the system creates a new history file(s) ensure that the previous history file is flushed of unprocessed messages. Prior to this change, a flood of system messages could cause the ACO System History Monitor to prematurely "roll-over" to the new system history file prior to reading all of the messages contained in the previously active system history file

Version 5.1.00

Enhanced ACO Job Event Monitor. i) The system status/performance event was modified to include two new fields to report the current and maximum unprotected storage used statistics. ii) The library/file object event monitor was expanded to monitor for specific library/file lock events. iii) The job event exclusion window was changed to allow entry of generic (*ANY) job names.

QHST Monitor Correction. A correction was made to the QHST Monitor to automatically flush the previously active history file when the system rolls-over to a new history file.

Support for Additional Two-Way Messaging Devices. The two-way messaging engine was enhanced to support two-way messaging devices that do not package the original message (sent from ACO) along with the reply/command entered on the device. With this enhancement, ACO now supports remote systems management using virtually any device (e.g. cellular phone, pda, or laptop) that supports two-way messaging and/or e-mail capabilities.

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Work with Action Scripts. Added the ability to specify additional message parameters (as well as perform message concatenation functions) in the "command to run" field. ii) Allow program variables in the "Command to run" field to be concatenated with no leading blanks (using the <| keyword). ii) Added the ability to run action scripts from the Work with Action Scripts list panel.

Enhanced ACO Enterprise Message Server Options. Added the ability to automatically switch the ACO Enterprise Servers (ACO_MSG and ACO_CTL) to a secondary enterprise system. You pre-define the secondary enterprise system host (and domain) name to contact in the event of a failure or planned downtime. Then, use the ACO Start Recovery command (ACOSTRRCY) to automatically switch the ACO enterprise servers over to the alternate system. This command can be issued by the enterprise system (via the ACO_CTL server) or manually by your operations personnel.

Enhanced ACO Message Monitor Error Recovery. Additional error recovery logic was added to terminate the message monitor (and create a joblog) if the "forward to" message queue is full.

New Work with Message Actions Re-sequencing Feature. i) Message action sets can be automatically re-sequenced based on your user-defined parameters. This function automatically creates a backup of the existing message set prior to performing the re-sequencing operation. User has the ability to restore the previously saved message set. ii) Allow additional message descriptions to be retrieved (from various user-defined message files) when displaying the Work with Message Actions list panel in folded mode. iii) Allow additional message parameters in the "Command/script to run" field. iv) Allow program variables in the "Command/script to run" field to be concatenated with no leading blanks (using the <| keyword).

Miscellaneous Fixes. i) The ACO Startup command (ACOSTRUP) was modified to automatically release the ACO monitor job queue (ACOPAGMON) during startup activities. ii) Modified the "Display License Information" panel (and the ACO Point-and-Shoot menu ACOMENU) to display the current release information for all ACO products. iii) The Work with Message History prompt was modified to default to the current system date. iv) All panels were enhanced to more effectively control cursor positioning when performing various maintenance functions.

Version 5.1.01

Enhanced Data Propagator. The data propagator feature was expanded to allow scheduled file transfers.

Enhanced Paging Engine. i) Re-designed the internal line configuration status logic to eliminate the occasional CPA5714 error message in QSYSOPR. This message is sent by the operating system if a timing error is encountered while performing the VRYCFG command. ii) Corrected a problem varying off the configuration objects if the "forced vary" option is specified and a non-switched line is currently selected. iii) Added a default group id (in Work with Execution Options) to be used while in restricted state. During restricted state processing all normal paging activities are suspended and any specific individual or group id selections are overridden with the restricted state group id.

Enhanced Operator Console. The ACOCONSOLE command was enhanced to properly break the display when an inquiry message is sent to the alternate system operator message queue (e.g. ACO in QUSRSYS). In addition, the job sender information from the originating message (in the monitored queue) can be displayed. This command is also used by the ACO Client™ for WebSphere® to remotely manage your iSeries (or AS/400) over the Internet (or your Intranet).

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Miscellaneous Fixes. i) Allow the ACO Network Monitor command (ACOCFGNET) to run in a batch environment. This enables dynamic switching between TARGET and SOURCE modes on a particular host system. ii) Added additional fields to ACOCHGACT command. This command allows you to dynamically change certain fields in an existing Work with Message Action record.

Version 5.1.02

Enhanced Restricted State Paging Capabilities. i) The Start Message Monitor command (STRPAGMON) was enhanced to set the ACO restricted state indicator (data area ACORST) during startup when *BREAK delivery mode is specified. ii) The Start Message Monitor command (STRPAGMON) was modified to automatically change the system console job to use the system reply list during restricted state processing if the *BREAK delivery mode is specified. iii) The paging engine was modified to automatically broadcast to the restricted state group call list during restricted state processing. iv) The paging engine was also modified to eliminate sending delayed messages during restricted state processing.

Version 5.1.03

Enhanced Two-Way Reply Engine. The ACO Two-Way Reply engine was modified to allow the receipt of reply/command messages using an alternate directory entry name. By default, ACO expects two-way messages to be routed by your network back to the ACO2WAY directory entry (and message queue) on your iSeries.

Version 5.1.04

Enhanced Paging Engine. The paging engine was modified to allow notification messages to be silenced (acknowledged). This will stop normal escalation functions when you cannot respond immediately to an outstanding inquiry message. This new capability is available on the Work with Active Messages display. To view active messages enter the ACOWRKMSG RUNMOD(A) command and select option 9 to silence the message.

Version 5.1.05

Enhanced Restricted-State Monitor. i) The Start Message Monitor command (STRPAGMON) was enhanced to set the ACO restricted state indicator (data area ACORST) during startup when *BREAK delivery mode is specified. ii) The Start Message Monitor command (STRPAGMON) was modified to automatically change the system console job to use the system reply list during restricted state processing if the *BREAK delivery mode is specified. iii) The paging engine was modified to automatically broadcast to the restricted state group call list during restricted state processing. iv) The paging engine was also modified to eliminate sending delayed messages during restricted state processing.

Enhanced Two-Way Messaging Engine. i) The ACO Two-Way Reply engine was modified to allow the receipt of reply/command messages using an alternate directory entry name. By default, ACO expects two-way messages to be routed by your network back to the ACO2WAY directory entry (and message queue) on your iSeries. ii) Added a new two-way protocol to handle message replies that are not sent in ASCII format (e.g. UTF-8).

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Enhanced Message Monitor and Paging Engine. i) Added a new pager type (7) to support sending messages to user message queues. ii) Expanded the ACO Message Monitor to optionally escalate non-inquiry messages. Prior to this change only inquiry messages could be escalated. iii) The paging engine was modified to allow notification messages to be silenced (acknowledged). This will stop normal escalation functions when you cannot respond immediately to an outstanding inquiry message. This new capability is available on the Work with Active Messages display. To view active messages enter the ACOWRKMSG RUNMOD(A) command and select option 9 to silence the message.

Enhanced TCP/IP Monitor. Added packet length and number of packets parameters to the ACO Ping command (ACOTCPPING). This provides more user control over the actual ping attempts sent to the remote system.

Version 5.1.06

ACO Two-Way™ Message Engine Fix. Corrected a problem with the ACO two-way reply engine to correctly process reply messages that are sent (by your two-way messaging service provider) in a format other than ASCII (e.g. UTF-8). Normally, e-mail messages are sent by the service provider in ASCII format.

Version 5.1.07

Enhanced Work with Active Messages Command. i) Corrected a cosmetic problem with Work with Active Messages command. ii) Added the ability to clear a message queue of all answered messages from the Work with Active Messages list panel.

Version 5.1.08

ACO Two-Way™ Message Engine Fix. Corrected a problem with the keywords used to locate the senders e-mail address. Also, corrected a logic problem when the #### reply header is entered along with the reply message on the two-way device.

Version 5.1.09

Job Event Monitor Correction. Corrected a problem with the ACO Job Event Monitor (ACOBJOBMON) when the run time specified crossed a day boundary (e.g. 23:00 – 22:00 hours) on a generic job event. The ACO Job Event Monitor was sending an erroneous message (AC00116) when processing multiple jobs on the system with the same generic job name (e.g. QTSMTTP*). This was due to an internal run time field being incorrectly set after processing the first job in the list.

Version 5.1.10

Re-designed Paging Engine Error Recovery. Corrected a problem with the ACO Paging Engine (ACOMODEM) to eliminate a line status check (if an exception error occurs during the paging conversation) when the page is sent successfully. In addition, the ACOPAGER driver program was modified to perform a subsequent VRYCFG command if the line is not found to be in the VARYIED OFF status after completing a page request. This line status check is only performed when the previous page request was not successful and the maximum retry count has not been reached.

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Version 5.1.12

Miscellaneous Program Fix. Allow impromptu inquiry messages (sent via the SNDMSG command) to be synchronized between QSYSOPR and the alternate system operator message queue. .

Version 5.2.00

Enhanced Job Event Monitor. Added a new feature to monitor a job based on elapsed run time. Now you can specify a minimum/maximum run-time for a specific (or generic) job and monitor whether or not the job exceeds the maximum elapsed run-time specified.

Enhanced Work with Active Messages Command. i) Added a new feature to color code messages based on the severity of the received message. To set the default message colors use the ACOWRKMSG RUNMOD(A) command and press F15. Color coded messages can be viewed from the Work with Active Messages panel or from the ACO Client™ for WebSphere® web client interface. ii) Enhanced the Work with Messages Command to include original job sender information and extended message help.

Enhanced RePage (Escalation) Monitor. Added a new feature to define message escalation intervals (e.g. “minutes to delay”) by pager id in the group call list. The “minutes to delay” interval (in Work with Message Actions) is now valid only for notifying a single pager id (e.g. Pager type = *USER). Group escalation intervals must now be defined on the Work with Group Call List panel. If you leave the first delay value blank (on group priority 10), the pager id on this line is notified immediately when the message is received. If you enter a value in this field, the RePage Monitor will delay the notification until the delay interval specified has been reached. If all delay intervals are left blank the first pager id will be notified when the message is received. All subsequent message escalation is based on the RePage Monitor delay interval entered in Work with Execution Options. **To utilize this feature the RePage Monitor must be actively processing the monitored message queue.** See the Work with Message Queues option for more information on the RePage Monitor.

Miscellaneous Fixes. i) Redesigned break handling program ACOCONSOLE. ii) Eliminated the message monitor "end" messages if the *IMMED option is selected on the subsystem end parameter. iii) Allow inbound/outbound e-mail to be removed for *ALL or selected users.

Version 5.2.01

New Command (ACOLNKMSG) to Synchronize Message Queues. A new command (ACOLNKMSG) was developed to synchronize the ACO “alternate system operator message queue” with QSYSOPR. This command will instruct the ACO Message Monitor to automatically reply to a forwarded message (in the alternate system operator message queue) if the reply is entered in QSYSOPR. This command is most useful if you are running a non-ACO message monitor against the ACO alternate system operator message queue to process inquiry messages.

Version 5.2.02

ACO Console Command Change. The ACOCONSOLE command was changed to eliminate a lock on the ACO “alternate” system operator message queue. Prior to this change, other users could not display

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(or respond) to messages delivered to this message queue (e.g. QUSRSYS/ACO).

Version 5.2.03

Change Message Action Command Change. The ACOCHGACT command was modified to return job completion/error messages to the calling program. Now you can monitor for the CPF9898 message id to determine if the requested change was successful (or unsuccessful).

Version 5.2.04

Miscellaneous program fixes. i) The ACOPAGE command was modified to automatically start the ACOPAGER subsystem. ii) The ACO Work with Message History command was enhanced to allow direct entry into impromptu message history.

Version 6.0.00

New Security Audit Monitor. This new monitor processes the iSeries security audit journal (QAUDJRN). As a result, many types of security related events can be monitored, logged, and analyzed in support your Sarbanes/Oxley requirements. New commands were created to start and stop the monitor functions (STRSECMON and ENDSECMON).

New System Health Monitor. This new monitor executes basic system maintenance and heart beat functions to ensure your system is running at peak performance. New commands were created to start and stop the monitor functions (STRHLTMON and ENDHLTMON).

Enhanced Windows Event Monitor. This new monitor executes basic system maintenance and heart beat functions to ensure your system is running at peak performance. New commands were created to start and stop the monitor functions (STRWINCLT and ENDWINCLT). This feature requires the ACO Enterprise System Interface™ software agent and a Windows monitoring client application both of which are sold separately. For more information please contact a DDL Systems sales representative.

Enhanced Two-Way Messaging Engine. The ACO Two-Way Messaging engine was significantly enhanced to process message replies and OS/400 commands with greater efficiency and ease of use features. In addition, the ACO Two-Way Monitor now supports Blackberry devices, UTF-8 encoded messages, and base64 encoded messages.

New Command (ACOLNKMSG) to Synchronize Message Queues. A new command (ACOLNKMSG) was developed to synchronize the ACO alternate system operator message queue with QSYSOPR. This command was specifically designed to work with a 3rd party monitoring system.

Redesigned Work with Execution Options. i) All existing panels were reworked to simplify user maintenance. Now you can change parameters in each option category independently without having to progress through all option panels. ii) New panels were added to support the Windows Event Monitor, Security Audit Monitor, and the System Health Monitor. iii) New ACO Two-Way messaging options were added to support Blackberry devices, UTF-8 encoded messages, and base64 encoded messages.

Enhanced Work with Line Descriptions Option. i) The ACOPAGER subsystem is now automatically restarted (if terminated) during line description maintenance. ii) The maintenance program was modified to report unsuccessful line description changes back to the user. Normally, this is due to system locks on

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the various network objects. iii) The ACOINSTALL command was modified to copy all existing line description job queues to the refreshed ACOPAGER library. Unique job queues are required to support each new line definition.

Enhanced ACOPAGE Command. i) The ACOPAGE command was modified to avoid sending job completion messages during interactive paging requests. ii) The ACOPAGE command was modified to automatically start the ACOPAGER subsystem.

ACO Console Command Change. i) The ACOCONSOLE command was changed to eliminate a lock on the ACO “alternate” system operator message queue. Prior to this change, other users could not display (or respond) to messages delivered to this message queue (e.g. QUSRSYS/ACO). ii) The console also automatically color-codes messages based on message severity. iii) The ACOCONSOLE command now allows a user-defined exit program to be called. This was specifically designed to work with a 3rd party monitoring system.

Change Message Action Command Change. The ACOCHGACT command was modified to return job completion/error messages to the calling program. Now you can monitor for the CPF9898 message id to determine if the requested change was successful (or unsuccessful).

Clear Message History Command Change. i) The ACOCLRST command logic was rewritten to improve message history purge performance. ii) This command was modified to allow *ALL to be specified in the message queue (and library) parameters. This allows message history (for all currently monitored queues) to be purged during a single run of the command. iii) The ACOCLRST command was modified to return job completion/error messages to the calling program. Now you can monitor for the CPF9898 message id to determine if the requested change was successful (or unsuccessful).

Miscellaneous program fixes. i) Significant performance improvements over version 5.2. ii) The ACO Work with Message History command was enhanced to allow direct entry into impromptu message history. iii) Modified Work with Message Actions to ensure all numeric values are entered in the *job time* field. iv) The ACO Work with Message History command was enhanced to allow direct entry into impromptu message history. v) A correction was made to the ACO Job Event Monitor to properly retrieve the job status for BCI jobs in the QHTTPSVR subsystem. vi) A correction was made to the ACO Job Monitor to resolve a problem produced by the *job time duration* field (in Work with Message Actions). If the job time duration value (in minutes) forced the Job Monitor to cross a day boundary the AC00088 message was being sent to the monitored message queue even if the message being interrogated was received within the allowable time frame. vii) Added a new permanent key entry window in Work with Licensed Programs option. viii) Corrected the message queue status (in Work with Message Queues) if the monitors are cancelled (via the CNLJOB command). ix) Modified Work with Message Queues to automatically create a new message queue (in the system) when using action code 3 (copy message queue) option. x) Work with Job Events option was modified to allow a specific start/stop time range to be entered for *ANY job entries.

Version 6.0.01

Enhanced ACO System Health Monitor. The ACO System Health Monitor was enhanced with new day-of-week and time-of-day parameters. These new system parameters allow more specific “user-defined” control over when the various system health functions are executed.

Version 6.0.02

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Miscellaneous bug fix. A minor change was made to the ACO modem messaging engine to automatically terminate the connection (i.e. hang-up) after sending an audible alert to a telephone (e.g. pager type 3).

Version 6.0.03

Enhanced Two-Way Messaging Engine. An enhancement was made to the ACO Two-Way Reply engine to ignore "Out-of-Office" auto-response messages from your two-way messaging device and/or e-mail client.

Version 6.0.04

Enhanced ACO Two-Way Messaging Engine. An enhancement was made to the ACO Two-Way messaging engine to allow for a "user-defined" e-mail subject line. The special value of *PREFIX in the "subject" parameter (in Work with Pagers) will now instruct the ACO Two-Way messaging engine to construct the e-mail subject line based on the message prefix settings (in Work with Pagers). The message prefix parameters that can be selected are system name, message queue name, job/user name, date/time stamp, and message id.

Version 6.0.05

New ACO Enterprise MQ Message Server(s). A new set of messaging agents were developed to communicate to the Enterprise System via WebSphere® MQ. WebSphere® MQ is available from IBM® at a separate fee. Please contact our SupportLine for more information and set up instructions.

Enhanced ACOCONSOLE Monitor. The ACOCONSOLE monitor now supports a new "display all" (and/or refresh) message console function.

Enhanced ACO Job Event Monitor. The Work with Job Events option (ACOWRKEVTF) now supports the entry (and maintenance) of multiple job event sets. Optionally, a new Change Job Set command (CHGJOBSET) can automatically switch the Job Event Monitor over to a new pre-defined job event set. This provides the ability to automatically perform system "fallback" functions (directly from ACO or an enterprise system) and monitor different job events on based on your user-defined actions.

Version 6.0.06

Enhanced ACO Job Event Monitor. i) The job event "elapsed time" monitor was redesigned to work for each job event parameter (e.g. Pool id, CPU seconds/percent, Aux I/O etc). The "from/to" elapsed time fields (if entered) act like a filter that must be met before the job specific threshold parameter(s) are checked. ii) The job event monitor was also enhanced to monitor for jobs that exceed either a maximum CPU percentage (or seconds used) threshold. iii) A new prompt panel was added to the Work with Job Events option (ACOWRKEVTF) to display the existing user-defined job event sets.

Enhanced ACO Enterprise System Integration Features. i) Added a new logical file over the ACO Message Transaction file (ACP0200) to ensure that all enterprise message events are processed in date/time stamp order. ii) A new panel was added to Work with Execution Options to allow user-defined control over the formatting (and sequencing) of the message event parameters that are sent to the

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enterprise system. iii) Allow the ACO Enterprise MQ agents to be turned On/Off via a new Work with Execution Option. iv) The ACO messaging engine (ACOLINK) was enhanced to send reply acknowledgments (e.g. AC00050 event message) to the ACO enterprise message server(s) if the "copy message" option is specified in Work with Message Actions.

Miscellaneous Program Fixes. i) Added new message literals to support various panel edit changes. ii) Modified the ACOINSTALL command to convert all Job Event Sets (in ACP0085), convert the ACOJOB job description, and automatically set the alternate system operator message queue "full action" to a value of *WRAP. iii) Modified the ACO point-and-shoot menu (ACOMENU) to call the ACOSNDMSG command and fixed various menu option navigation functions. iv) Corrected the help text for the severity field in Work with Message Actions. v) Corrected a problem (in Work with Message History) when copying history records (to Work with Message Actions) that do not contain a valid message id. These records will now be copied to the Work with Message Actions file with a message id of *ANY. In addition, the default the job number is automatically set to *ANY during the copy function.

Version 6.0.07

Enhanced ACO Enterprise System Integration Features. In the event that the alternate system operator message queue (ACO in QUSRSYS by default) fills the ACO Message Monitor (ACOPAGMON) will now notify the enterprise system. It does so by writing the AC00227 message event to the ACO Message Transaction file (ACP0200).

Miscellaneous Program Fixes. i) Added new message literals and help text to support various panel changes. ii) A new parameter was added to Work with Execution Options to allow user-defined control over the run priority of the Job Event Monitor.

Version 6.0.09

Enhanced ACO Enterprise System Interface Program Fixes. i) Return the user name (in AC00050) that replied to the message in place of the user that originally sent the message. ii) Corrected a problem loading the reply acknowledgement message. The result field containing the reply text was not been initialized prior to loading the reply contents. iii) Extract the subsystem name from the CPF1124 message id and store it in the message data field. Also, ensure the CPF1124 message (in QHST) is created first (in ACP0300).

Miscellaneous Program Fixes. i) Added new message literals, help text, and priming data to support various panel changes and features. ii) Performance improvements.

Version 6.0.10

Enhanced ACO Job Event Monitor. i) Allow generic names to be entered for job queue events. ii) Corrected a problem with the job event elapsed run-time calculation. Jobs that run within the elapsed min./max. run-time entered (in minutes) will trigger an event. Events will terminate once the maximum run-time (in minutes) has been reached; even if the monitored situation is still true.

Miscellaneous Program Fixes. i) Miscellaneous changes to support IBM Tivoli integration with the ACO ESI™ software agents. ii) Added new message literals, help text, and priming data to support various panel changes and features. iii) Corrected a problem with the ACO TCP/IP monitor for IBM i v6.1. The program now scans for any TCPxxxx message in the event a CPF9999 message is received

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as a result of running the PING command. iv) Corrected a problem with color coding the TCP/IP list panel status field. v) Corrected a problem with deleting (or maintaining) message action records if the message queue specified on the action record no longer exists on the system. vi) Corrected a cosmetic problem with the data propagator panels. vii) Corrected a problem with the delayed reply logic in Work with Message Actions. The program was not properly scheduling a delayed reply if the scheduled date/time crossed a day boundary. viii) Corrected a program exception error with the ACO Health Monitor.

Version 6.0.11

Enhanced ACO Messaging Features. Allow user-defined overrides to the message text that is sent to the paging device.

Miscellaneous Program Fixes. i) Corrected a problem with the ACO Two-Way Messaging engine. This software fix resolves a minor compatibility problem that was identified with the Base64 e-mail encoding scheme that is used by some service providers like BlackBerry. ii) Set the FTP command to only transfer the BASE member for the Work with Job Events file (ACP0085). iii) Corrected a problem with the edit on the panels that allow "Delete files" option. Panel edit was changed to allow Y or blanks only. iv) Corrected a problem with F3/F12 function keys when copying a line definition. v) Added static threshold values to the system performance event. vi) Add ACOPAGER to the library list prior to restarting the job event monitor after performing maintenance in Work with Job Events.

Version 6.0.12

Enhanced ACO Messaging Features. Changed the job-time paging search logic to allow for multiple events to be defined (and monitored) for the same job (and day of week) at different time intervals.

Miscellaneous Program Fixes. i) Added the job event exclusion/inclusion logic to the job queue monitor (in Work with Job Events). ii) Added Job Event Monitor performance improvements. iii) Corrected a problem with the ACO System Health Monitor elapsed run-time calculation logic.

Version 6.0.13

Enhanced ACO Messaging Features. Implement job number tracking for threshold processing. A new job number parameter value of *TRACK (in Work with Message Actions) will instruct the ACO Message Monitor to collect message threshold information by job number. This resolves the problem of exceeding the threshold sooner than expected when multiple messages are sent to the monitored queue with the same job sender information (using different job numbers).

Miscellaneous Program Fixes. i) Added a print history option (22) to the Work with Message Actions list panel. Selecting option 22 next to any record prints a detailed report containing the most recent collection of message history for this action record.

Version 6.0.14

Full-Cut Release. This service pack contains all cumulative changes from 6.0.09 through 6.0.13.

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Version 6.0.15

Miscellaneous Program Fixes. i) Added additional error recovery logic to temporarily lock the ACOHST data area prior to starting the history monitor. The ACO QHST Monitor could fail in the event another process on the system had an exclusive lock (e.g. system backup) on this data area. In addition, new error recovery logic was also added to ACOQHST1 when updating the ACOHST data area. ii) Corrected a problem with the job-time paging search logic and day-of-week processing. iii) Corrected a problem with the edit on the minimum/maximum run-time parameters in Work with Job Events.

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IMPORTANT RELEASE SPECIFIC INFORMATION:

- __1. **Follow the instructions in the “online” Quick Start Guide.** Please follow the installation instructions in the **QUICK START** guide to install the software on your iSeries (or AS/400) system. These instructions contain detailed information on how to install and verify the product setup and are accessible online at <http://www.ddlsystems.com/quickstart.html>.

If you have questions concerning the installation or how to use the new features contained within this version, please contact our *SupportLine* at **(866) 559-0800 and select option 2** or send e-mail to support@ddlsystems.com.

- __2. **Check your system for required IBM PTF's.** Your system may require installation of IBM PTF's to ensure proper operation of the ACO PAGER™ Message Alert System. Several important IBM PTF's are required to properly run certain SQL statements based on the installed version of OS/400. These PTF's are included in the latest version of the database group PTF for each release. **It is STRONGLY recommended that you put in place a process to regularly obtain (and apply) the latest cumulative PTF package, HIPER group PTF, and database group PTF to your system.**

Follow the link below to access the IBM iSeries Support web page. Here you can obtain the latest fixes for your iSeries (or AS/400) system.

<http://www-912.ibm.com/supporthome.nsf/document/25304232>