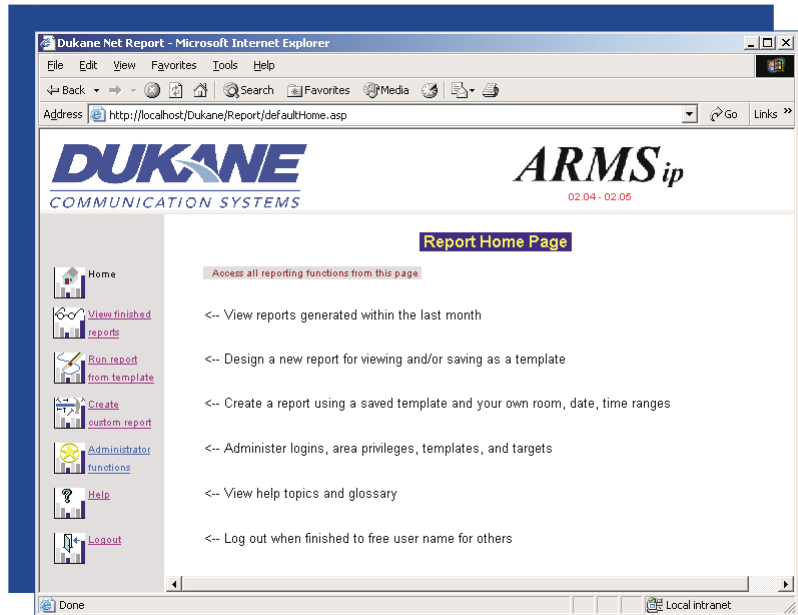


## **ARMS ip (Activity Reporting and Management System)**

### **Features**

- *Event Monitoring and Storage*
- *Automatic Report Generation*
- *ProCare 6000 Compatible*
- *Browser Based*
- *LAN Connection*
- *Self-Installing Web Site*
- *Comparison Between Actual and Target Times*
- *Choice of Parameters*
- *Activity Summarization*
- *Graph and/or Table Format*



### **General Description**

The Dukane Model 439-0019, 439-0020, 439-0021, and 439-0022 Activity Reporting and Management System (ARMS *ip*) is a multi-seat, browser-based software application used in conjunction with Microsoft® SQL Server 2000. Both ARMS *ip* and SQL Server are installed on a Model 60A820E or 60B820E Server PC from Dukane Communication Systems. This server is connected to a new or existing ProCare 6000® System and the Dukane ESM II host PC via the facility's LAN.

The ARMS *ip* server chronologically collects and stores the functional call events generated by the ProCare 6000 System, dependent upon the installed features of the system. These events can later be selectively recalled and organized into reports by means of a local ARMS *ip* web site, accessible from any number of PC workstations having Internet Explorer and a LAN connection to the ARMS *ip* server.

Reports can be created on a custom basis, or can be based on one of a predetermined number of licensed report templates. Each report template can be individually created, modified, and saved to collect and organize the requested patient call and staff location data, and to display and print reports in table or graph form, based upon selected parameters such as time and date, bed number, and so on. Each standard or customized report can then be saved by name, author, and run date for future recall.

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**(General  
Description)**

The number and type of call events, the maximum and average staff response times to the events, a comparison of the actual response times to ideal (target) response times determined by the administration, and an “exception” list of those staff response times that exceeded the target times can be generated, viewed, and printed upon demand or at a later time according to a user-configured schedule.

**Engineers’  
Specifications**

1. The Dukane Model 439-0019, 439-0020, 439-0021, and 439-0022 Activity Reporting and Management System (ARMS *ip*) shall be provided to operate with any new or existing ProCare 6000, ProCare 2000®, or ProCare 1000™ System that has been maintained with current standard software releases and hardware enhancements, and that is connected to an ESM II host PC via a LAN.
2. The ARMS *ip* software shall be installed on a Dukane Model 60A820E (desktop unit) or 60B820E (rack-mounted unit) Server PC that meets or exceeds the hardware and software specifications in the Model 60A/B820E product data sheet (document number 427-01-00585, on the web at <http://www.dukane.com>).
3. It shall be possible to connect multiple ProCare 6000, ProCare 2000 (through a 2600 interface), and ProCare 1000 Systems (through a 1600 interface) to the ESM II host PC and to a single ARMS *ip* server PC with SQL Server 2000 via a LAN for the purpose of gathering call and staff activity and generating reports.
4. The call and staff movement events generated by the ProCare Systems shall be stored in the SQL database for later recall when a user generates a report based on a new, modified, or existing template. The number of available templates shall be determined by the license purchased, in incremental levels of 5, 25, 125, and 625. Any number of specific reports may be generated, printed, and optionally saved based on each template. Users shall also be able to create and save any number of custom reports for one-time use.
5. Any number of client (staff) PCs having Internet Explorer 6 or greater shall be connected to the LAN. Staff members shall access the local ARMS *ip* web site on a password-protected basis to generate, modify, and print reports about the events that occur in their areas of the facility. Area privileges shall be assigned to each user name and password to control which areas each staff member can include in his/her reports. The number of simultaneous ARMS *ip* users allowed shall only be limited by the number of user logins purchased. The number of logins shall be associated with the number of templates at a ratio of 1:5 or 1, 5, 25, or 125 logins. Upon factory authorization the license may be upgraded to allow a greater number of users and templates.
6. Each report template shall be created (authored) only by authorized staff and based upon selected parameters such as room range, call priority, date and time, and a logical event pair. The resulting report shall calculate and measure the response time results against targets, and display them in one to nine table or graphical presentation sections, as selected by the template author.

7. The call sequences shall be segmented into events, each to be time stamped. When combined, they shall provide a period of time in minutes and seconds that can be compared to a target response time set by the individual department/area or by the facility. The events include:
  - a. Call set—Call is placed from a remote station (e.g., patient, staff/duty).
  - b. Call clear—Staff member makes the FIRST response to a call, such as answering at the master station (non-emergency calls), activating the presence feature (if provided) at the originating station, or pressing the CANCEL touch pad at the originating station (emergency calls).
  - c. Recall set—A remote station previously set on reminder reinitiates a call (a reminder recall) when the reminder period times out.
  - d. Recall clear—Staff member responds to a reminder recall by again answering from the master station, activating the presence feature (if provided) at the originating station, or pressing the CANCEL touch pad at the originating station.
  - e. Reminder set—One or any of three levels (red, amber, green) of reminder are activated from the master station or wireless telephone in communication with the remote station.
  - f. Reminder clear—All or any of three levels (red, amber, green) of reminder are canceled from a remote station.
  - g. Presence set—One or any of three levels (red, amber, green) of staff presence are activated by a manual pushbutton presence station or by the arrival of a staff member carrying an active IR badge.
  - h. Presence clear—All or any of three levels (red, amber, green) of staff presence are deactivated at a presence station or by the departure of a staff member carrying an active IR badge.
  - i. Arrival—An IR badge (staff or asset) enters the room.
  - j. Departure—An IR badge (staff or asset) exits the room.
  - k. Intercom activate—Master station or wireless telephone connects to a remote station for two-way voice communication.
  - l. Intercom deactivate—Master station or wireless telephone disconnects from a remote station upon completion of voice communication.
  - m. Device failed—Data link between system devices malfunctions or fails, or ARMS *ip* client is shut down.
  - n. Device recovered—Data link between system devices is restored, or ARMS *ip* client is restarted.
  
8. Two events may be combined into an “event pair” that, when a report is requested, shall provide a duration in minutes and seconds that is calculated and displayed for each occurrence based on the requested call priority and room/bed number. The sum shall be compared to the predetermined target time for each priority. A number between 0 and 100 indicates the percentage of occasions the staff’s response times met or exceeded the standards set by the author of the report or administrator of the system. The results shall be displayed in the report as a numerical table and/or a bar graph depending on the chosen report section.

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**(Engineers'  
Specifications)**

9. Each ProCare 6000 System's standard 16 call priorities may be assigned different alias names for each duty area, with the total number of priority aliases limited only by the number of duty areas in the ProCare Systems networked to the ARMS *ip* Server. Each alias shall have its own target times and shall be individually identified in reports, dependent upon the chosen areas included in the report.
10. A minimum of nine graphical sections or statistical presentations shall be available for inclusion into any report or template by an author when designing the report. One or more of these sections may be included in each report or template:
  - a. Overall Response Time Statistics By Priority—shall provide a listing of staff response times to the selected call priorities. The activity count, average response time, maximum response time, and percentage within target shall be listed for the selected event pair. In addition, a graphical representation of percentage within target shall be included.
  - b. 13 Week Historical Response Time Performance—shall be presented in a vertical bar graph, comparing the percent within target on a per week basis for a given event pair over the previous 13 weeks.
  - c. Response Time Target-Exception List—shall appear as a single line listing, by call priority, of each occurrence where the elapsed time of the selected event pair exceeded the established target. Each exception for each call priority shall be listed, including the exceeding amount of time in descending order, the start and end time and date of the occurrence, area and room location, and the alternate and primary staff assigned to the patient (room number).
  - d. Response Time Target-Exception Details—shall appear as a multi-line listing, by call priority, of each occurrence where the elapsed time of the selected event pair exceeded the established target. Each exception shall provide the sequence of events that occurred between the beginning and end of the requested event pair.
  - e. Response Time Distribution Charts—shall be presented in a vertical bar graph providing a quick view, by call priority, of the number of calls placed and of the staff response times in 30-second increments, for the selected event pair during a requested time period.
  - f. Response Time Single Area Shift Charts—shall provide a table and graph for the specified shifts of a single area. The activity count, average response time, maximum response time, response target value, and percentage within target shall be listed for the selected call priorities and event pair. In addition, a graphical representation of percentage within target shall be included.
  - g. Response Time Statistics Shift/Area Table—shall provide a separate table for each requested area, broken down by shift. The activity count, average response time, maximum response time, response target value, and percentage within target shall be listed for the selected call priorities and event pair.
  - h. Response Time Area Chart—shall provide a separate table and graph for each requested area. The activity count, average response time, maximum response time, response target value, and percentage within target shall be listed for the selected call priorities and event pair. In addition, a graphical representation of percentage within target shall be included.

- i. Full Event List—shall display all call events, as chosen by the author, listed by time, date, area, location (room/bed number), and event (by name). Each field shall be capable of being sorted and/or arranged in ascending or descending order. The display fields to be shown shall be chosen by the author at the time of report creation. Other fields such as staff level, primary or alternate staff, IR badge number, and badge type shall be displayed, if selected by the author, when appropriately associated with the type of event.
11. When creating a report, the author shall be able to select which ARMS *ip* users will be able to view the finished report. Those users, when logged in with their assigned user names and passwords, shall be able to select and view the report from a list of author names, report (name) styles, and report run dates. The report shall be presented in a table or in graphical formatted sections as chosen by the original author. The report shall be available for viewing for one month, at which point it will automatically be deleted from the server. The event data shall remain in the SQL database, thereby allowing the report to be re-generated if needed.
12. It shall be possible to use an existing template to generate a new report at any time. The new report may be viewed, printed, and saved for future review. The time/date range, room number or range of rooms, and user viewing restrictions may be altered to meet the requirements of the current user.
13. It shall be possible to design and save a new template at any time, provided a template license is available to the user. If not, additional licenses shall be made available through the purchase of an upgrade from Dukane. A wizard shall guide the user to simply and correctly develop a template to generate one or more reports based upon user-selected parameters.
14. Any saved template may be scheduled to print automatically on an hourly, daily, weekly, or monthly basis on a specified printer connected to the LAN.
15. Context-sensitive help topics shall be available to guide the user through correct operation of the ARMS *ip* web site. Selecting the Help button on each page shall display the associated help topic for that page, with links to other related topics.
16. Logins, area privileges, templates, and target times shall be changeable, requiring an authorized administrative password.
17. ARMS *ip* shall have three backup jobs that run in the background. These backup jobs shall include all system databases on the ARMS *ip* server and all ARMS *ip* data, including nurse call and staff location events, logins, target times, saved templates, and saved reports.
  - a. The *Full Warehouse Backup* shall back up the entire Warehouse database every two weeks. Six months of these backups shall be stored; any backups older than six months shall automatically delete.
  - b. The *Warehouse Maintenance Plan* shall back up the previous day's Warehouse data every day. Fifteen days of these backups shall be stored; any backups older than 15 days shall automatically delete.

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**(Engineers'  
Specifications)**

- c. The *All System Database Backup* shall back up the ARMS *ip* server's system databases every month. Six months of these backups shall be stored; any backups older than six months shall automatically delete.
  - d. It shall be possible to modify the backups to run at a different time, or to save the data to a different location. It shall also be possible to manually initiate either type of backup as needed.
18. ARMS *ip* shall provide an archive function that runs in the background.
- a. Every two weeks, all ARMS *ip* data over six months old shall be removed from the Warehouse database and stored in an archive file.
  - b. It shall be possible to modify the archive function to run at a different time, or to save the data to a different location. It shall also be possible to manually archive data as needed.
  - c. If a user requests a report that includes archived data, ARMS *ip* shall retrieve that data without requiring any special actions from the user.
19. A SQL server error alert feature shall be provided to automatically send out email notices in the event of certain types of SQL errors.
- a. Four predetermined types of errors, such as the Warehouse database running out of space, becoming corrupted, or not receiving any nurse call data for over an hour, shall trigger an email.
  - b. The facility shall be able to choose the email address that will receive these email alerts.
  - c. The email messages shall contain a brief description of the nature of the error, to provide assistance in resolving the error.

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**SERVER COMPUTER****Model 60A820E (Desktop) or 60B820E (Rack Mount)**

Dukane Server PC (specifications available at [www.dukane.com](http://www.dukane.com))

**Dukane cannot guarantee ARMS *ip* performance if lesser equipment is substituted for the PC listed above. Dukane does not recommend running other applications simultaneously with ARMS *ip* on the ARMS *ip* server PC.**

**Model 18A710**

15-Inch CRT Display and Controller

**OTHER****ESM II Host PC**

Model 439-0001 ESM Host Software

**ProCare 6000 Equipment**

Model 110-3613D File Server

Supplemental Video Display (Model 60A800D PC plus Model 438-753C

Supplemental Video Installation Kit)

Model 439-0002 ProCare 6000 Bridge

**ProCare 2000 Equipment (Optional)**

ProCare 6000 System including above equipment

Model 110-2310C Central CPU Board (contained in 12A2300C)

Model 438-678 Serial Interface kit

Model 438-812 System 2600 Interface Kit

Model 110-3614A ZIU PCB (ProCare 6000)

**ProCare 1000 Equipment (Optional)**

ProCare 6000 System including above equipment

Model 438-855 System 1600 Interface kit(s)

Model 18A/B435 Corridor Lights (ProCare 6000)

**Associated  
Equipment**

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*ProCare 1000 is a trademark and ProCare 2000 and ProCare 6000 are registered trademarks of Dukane Communication Systems.*

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